MILITARY INDIVIDUAL READINESS
ÉTAT DE PRÉPARATION MILITAIRE DE L'INDIVIDU

by:

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Abstract

The Individual Readiness section at Defence Research and Development Canada (DRDC) Toronto is initiating a program of research investigating military individual readiness of Canadian Forces (CF) personnel. This literature review was conducted to provide a broad understanding of the various elements of individual readiness and factors that influence readiness. This review begins with definitions of individual readiness. Current models and measures of individual readiness were also considered. The review then identified and described antecedents of individual readiness, including the CF organization, skill training, and personnel support programs. This ensured individual readiness would be considered from the organizational level as well as the individual level. Following this, the factors influencing individual readiness were examined with particular connection to the impact on performance. A draft model of military individual readiness is presented. Individual readiness dimensions include organizational citizenship behaviour, commitment, identification (with the CF), job satisfaction, perceived organizational support, technical competence, self-efficacy, coping skills, physical fitness, family adaptation, and work-life balance. The literature concludes with a discussion articulating a possible research program to explore military individual readiness.

Résumé

La section État de préparation de l'individu de Recherche et développement pour la défense Canada (RDDC) Toronto lance un programme de recherche visant à examiner l'état de préparation militaire de l'individu pour les membres des Forces canadiennes (FC). La présente analyse documentaire a été effectuée pour acquérir une large compréhension des différents éléments de l'état de préparation de l'individu et des facteurs qui agissent sur cet état de préparation. Cette analyse débute par une présentation des définitions de l'état de préparation de l'individu. Les modèles actuels et les mesures de l'état de préparation ont aussi été pris en compte. L'analyse a ensuite identifié et décrit les antécédents de l'état de préparation de l'individu, y compris l'organisation des FC, l'acquisition de compétences et les programmes de soutien au personnel. Cela a été fait afin de s'assurer que l'état de préparation de l'individu soit examiné des points de vue organisationnel et individuel. À la suite de cela, les facteurs influençant l'état de préparation de l'individu ont été examinés, particulièrement en lien avec les répercussions sur le rendement. Une ébauche de modèle de l'état de préparation militaire de l'individu est présentée. Parmi les dimensions de l'état de préparation de l'individu, on retrouve le comportement de citoyenneté organisationnelle, l'engagement, l'identification (aux FC), la satisfaction professionnelle, le soutien organisationnel perçu, la compétence technique, l'auto-efficacité, les habiletés d'adaptation, la forme physique, l'adaptation familiale et la conciliation travail-vie. La documentation se termine par une discussion proposant un éventuel programme de recherche visant à explorer l'état de préparation militaire individuel.

Executive Summary

Military Individual Readiness

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The Individual Readiness section at Defence Research and Development Canada (DRDC) Toronto is initiating a program of research investigating military individual readiness of Canadian Forces (CF) personnel. To gain a broad understanding of the various elements of individual readiness and factors that influence this, a literature review was conducted. The literature review began with an investigation of the current working definitions of individual readiness and these were numerous and varied in their focus. For example, some approach readiness purely from the individual perspective, at the expense of including only cognitive dimensions (Bolstad et al., 2006a; Morrison & Fletcher, 2002; McDonald, 1999). On the other hand, others approach readiness from a more holistic perspective, including social factors (Reineck, 1999; McGonigle et al., 2005). Despite their differences, theorists and researchers within this domain tend to agree that individual readiness represents some form of preparedness to complete a task or fulfill a role in a particular operational context, which is influenced by a number of contextual factors (e.g., institutional programs).

We then investigated current measures of individual readiness, including examining current models. Our review suggested that the literature can be characterized as still being at a relatively early stage of development, evidenced both by the quality of the existing research (which is variable) and the lack of adequate measures and support for existing models of individual readiness. Measures that do exist are generally tailored to a specific domain and their generalizability is unclear. The models related to individual readiness are perhaps more developed than measures, but are still relatively few and often lack empirical support. These have not been broadly validated. One prominent model by McGonigle et al. (2005) presents a good account of some readiness factors, but its usefulness is constrained by its primary focus on personnel support programs.

We then examined a range of antecedents to individual readiness. Though it is difficult to "segment" the many different influences into discrete categories while preserving the true nature of readiness, we identified three broad categories. These are the CF organization (including CF policies and practices, regimental system, and leadership), skill training (including unit skill and collective efficacy), and personnel support programs (including unit climate and sense of community). The interrelation of these must be maintained to develop a broad perspective of individual readiness.

We also examined the factors that influence individual readiness, and when possible their connection to performance. Our review suggests that the literature relevant to specific influences on individual readiness has developed unsystematically, and that the many different dimensions in play appear to have received varying amounts of empirical attention. The research that has been conducted often comes from the organizational effectiveness literature, which has explored the relationship among constructs, such as commitment, identification and perceived organizational support, often in relation to outcome indicators such as retention and turnover.

However, the empirical linkage with readiness is better developed for some readiness dimensions than others.

From the literature reviewed, we developed a draft model of military individual readiness. This model approaches readiness from an organizational level and moves through the unit level to the individual level. It includes organizational and unit level processes that influence the various dimensions that define individual readiness. Individual readiness dimensions include organizational citizenship behaviour, commitment, identification (with the CF), job satisfaction, perceived organizational support, technical competence, self-efficacy, coping skills, physical fitness, family adaptation, and work-life balance.

Finally, the literature review concludes with a discussion articulating a possible research program regarding military individual readiness. Specifically, we identify possible research efforts to address four fundamental research questions that we believe will advance the area of military individual readiness. Efforts include understanding the conceptual nature of individual readiness, developing means to experimentally capture it, determining what factors promote, sustain and diminish it, and revealing the impact of individual readiness on operational performance and effectiveness.

Sommaire

État de préparation militaire individuel

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La section État de préparation de l'individu de Recherche et développement pour la défense Canada (RDDC) Toronto lance un programme de recherche examinant l'état de préparation militaire de l'individu pour les membres des Forces canadiennes (FC). Afin d'acquérir une compréhension générale des différents éléments de l'état de préparation de l'individu et des facteurs qui l'influencent, une analyse documentaire a été effectuée. Cette analyse a commencé par une enquête sur les définitions fonctionnelles actuelles de l'état de préparation de l'individu. Ces définitions sont nombreuses et leurs centres d'intérêt variaient beaucoup. Par exemple, certains chercheurs abordaient l'état de préparation uniquement du point de vue de l'individu, au dépens de l'inclusion des seules dimensions cognitives (Bolstad et autres, 2006a; Morrison et Fletcher, 2002; McDonald, 1999). D'un autre côté, d'autres recherches abordaient l'état de préparation d'un point de vue plus global, en incluant les facteurs sociaux (Reineck, 1999; McGonigle et autres, 2005). Malgré ces différences, les théoriciens et les chercheurs dans ce domaine tendent à s'entendre sur le fait que l'état de préparation de l'individu représente une certaine forme de préparation permettant de réaliser une tâche ou de remplir un rôle dans un contexte opérationnel particulier, ce qui est influencé par un certain nombre de facteurs contextuels (p. ex., les programmes institutionnels).

Nous avons ensuite enquêté sur les mesures actuelles portant sur l'état de préparation de l'individu, ce qui comprend l'examen des modèles actuels. Les résultats de notre étude laissent entendre que la documentation en serait toujours aux premiers stages de son développement, comme en témoigne la qualité (variable) des recherches existantes et le manque de mesures adéquates et de soutien pour les modèles existants de l'état de préparation de l'individu. Les mesures que l'on retrouve sont généralement adaptées pour convenir à un domaine précis et leur généralisabilité n'est pas clairement établie. Les modèles liés à l'état de préparation de l'individu sont peut-être plus développés que les mesures, mais ils demeurent relativement peu nombreux et, bien souvent, ils ne disposent pas de soutien empirique. De façon générale, ceux-ci n'ont pas été validés. Un modèle important de McGonigle et autres (2005) constitue une bonne représentation de certains facteurs de préparation, mais son utilité est limitée par le fait que son centre d'intérêt porte principalement sur les programmes de soutien au personnel.

Nous avons ensuite examiné une gamme d'antécédents à l'état de préparation de l'individu. Bien qu'il soit difficile de « segmenter » les nombreuses et différentes influences en catégories individuelles tout en préservant la véritable nature de l'état de préparation, nous avons identifié trois catégories générales. Il s'agit de l'organisation des FC (y compris les politiques et les pratiques des FC, le système régimentaire et le leadership), l'acquisition de compétences (notamment la compétence technique d'une unité et l'efficacité collective) et les programmes de soutien au personnel (y compris le climat de l'unité et le sentiment d'appartenance à la communauté). L'interrelation entre ces éléments doit être maintenue afin d'élaborer un point de vue général de l'état de préparation de l'individu.

Nous avons aussi examiné les facteurs qui influencent l'état de préparation de l'individu et, lorsque cela était possible, le lien existant avec le rendement. Notre étude suggère que la documentation qui porte sur certaines influences particulières agissant sur l'état de préparation de l'individu s'est développée sans méthode et que les nombreuses et différentes dimensions en jeu semblent avoir été l'objet d'une attention empirique variable. Les recherches effectuées semblent souvent provenir de la documentation qui porte sur l'efficacité organisationnelle, celle-ci ayant exploré le lien entre les concepts, tels que l'engagement, l'identification et le soutien organisationnel perçu, souvent en relation avec les indicateurs de résultat, tels que la conservation de l'effectif et le roulement du personnel. Toutefois, le lien empirique avec l'état de préparation est mieux développé pour certaines dimensions de l'état de préparation que pour d'autres.

À partir de la documentation étudiée, nous avons mis au point une ébauche de modèle de l'état de préparation militaire de l'individu. Ce modèle aborde l'état de préparation au niveau de l'organisation et passe du niveau de l'unité jusqu'au niveau de l'individu. Il comprend les processus des niveaux de l'organisation et de l'unité qui influencent les différentes dimensions qui définissent l'état de préparation de l'individu. Les dimensions de l'état de préparation de l'individu comprennent le comportement de citoyenneté organisationnelle, l'engagement, l'identification (aux FC), la satisfaction professionnelle, le soutien organisationnel perçu, la compétence technique, l'auto-efficacité, les habiletés d'adaptation, la condition physique, l'adaptation familiale et la conciliation travail-vie.

Enfin, l'examen de la documentation se termine par une discussion proposant un éventuel programme de recherche visant à explorer l'état de préparation militaire. Plus particulièrement, nous identifions des efforts de recherche qui pourraient permettre de répondre à quatre questions fondamentales en recherche, questions qui, à notre avis, feront avancer le domaine de l'état de préparation militaire de l'individu. Au nombre de ces efforts, on compte la compréhension de la nature conceptuelle de l'état de préparation individuelle, la mise au point de moyens permettant de la saisir expérimentalement, l'identification des facteurs qui favorisent, soutiennent et réduisent cet état de préparation et la découverte des répercussions de l'état de préparation de l'individu sur le rendement et l'efficacité opérationnelle.

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1. Project Overview

1.1 Background

Today's battlespace is more complex than it has been in the past for Canadian Forces (CF). With its most recent deployment to southern Afghanistan (Kandahar province), the CF is involved in counterinsurgent operations on a regular basis. Unlike conventional state-to-state wars, these wars are fought among the people that both insurgent and counterinsurgent forces are trying to win over. Insurgents essentially wage political war through military means, making it extremely difficult for opposing forces to win the hearts and minds of the people they are meant to protect. Mere force is not necessarily decisive. In counterinsurgent wars, the information and moral dimensions can also be critical as documented in *Land Operations 2021: Adaptive Dispersed Operations: The Force Employment Concept for Canada's Army of Tomorrow* (2007). The role of the CF in Afghanistan includes fighting insurgents and terrorists, working with a number of other governmental and non-governmental agencies, and participating in infrastructure development. The demands on CF personnel are not only physical, but also mental and emotional as they are required to work in environments that are complex and uncertain. As well, the CF may see longer and more frequent deployments as the mission in Afghanistan continues and the size of the available force remains the same. With the current (and future) operational tempo, ensuring that CF personnel maintain high levels of both collective and individual readiness is necessary to maintaining maximal levels of military effectiveness.

1.2 Scope

The literature review will describe existing theory and research as well as provide integrative thought and focused critical analyses to describe the current state of the readiness literature and its relation to personnel support programs and operational effectiveness. The literature review will also extend to investigating the factors that might promote or frustrate individual readiness. This literature review will help answer the question posed in the initial Request for Proposal (RFP) "Literature Review of Military Individual Readiness" and the associated Statement of Work, namely:

> "Would a system for personal support based on a holistic (multi-disciplinary) approach to individual well-being, with or without integration with a managed readiness training system (or something comparable), improve the readiness of soldiers to achieve operational effectiveness?" (p. 16).

This literature review will include:

- current definitions and theories of individual readiness and operational effectiveness;

- current methods for measuring readiness and operational effectiveness;

- how individual readiness impacts current CF operations;

- implementation of personnel support programs; and

- strong recommendations to DRDC Toronto for future research activities.

1.3 Work Items

The following work items were undertaken:

- A search of the literature to identify relevant journal articles, reports, books, etc., pertaining to military individual readiness.
- Approximately 35 articles were selected from those identified in the search and were reviewed.
- A DRDC contractor report documenting the results of the literature review and a theoretical framework for understanding military individual readiness

1.4 Deliverables

The following deliverables were created under this contract:

- Progress reports at the end of each month for the duration of the project.
- CD with electronic copies (when possible) of the articles reviewed.
- A report on the literature review.
- Presentation to DRDC Toronto staff summarizing the report.

1.5 Acronyms

The following table presents a list of acronyms used throughout the report.

Table 1. Acronyms

Acronym	Long Form
AFQT	Armed Forces Qualification Test
CF	Canadian Forces
CMBG	Canadian Mechanized Brigade Group
COA	Course of action
DND	Department of National Defence
DMFS	Director Military Family Services
DRDC	Defence Research and Development Canada
KSAs	Knowledge, skills and abilities
LAV	Light armoured vehicle
M-CREST	Medical Cognitive Readiness Survey Tool
MRS	Managed Readiness System
MWR	Morale welfare and recreation
NATO	North Atlantic Treaty Organization
NCMs	Non-commissioned members
OCB	Organizational citizenship behaviour

Acronym	Long Form
OPTEMPO	Operational tempo
POS	Perceived organizational support
PSP	Personnel support program
PTSD	Post traumatic stress disorder
READI	Readiness Estimate and Deployability Index
RAMS	Readiness Assessment and Monitoring System
RFP	Request for Proposal
SME	Subject matter expert
TF	Task Force
TLD	Third Location Deployment
UNMO	United Nations Military Observer

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2. Method and Results

2.1 Mindmap and Keywords

To begin, a Mindmap was generated to provide an illustration of the major constructs and other research areas relevant to the topic of Military Individual Readiness. This process involved a brainstorming session with all members of the research team, and relied on their cumulative knowledge and experience with the pertinent scientific, psychological and military domains. From the Mindmap, a set of keywords was developed to focus the literature search. The team established a number of core concepts, which included individual readiness, work-family, personnel support programs, military, and job domains (see Table 2).

Table 2. Keywords

Core Concept	Primary Keywords
Individual Readiness	Unit cohesion, fitness, competence, organizational citizenship behaviour, morale, commitment, preparedness, performance, effectiveness, deployment, training
Work-Family	Skill building, job satisfaction, life satisfaction, family adaptation, perceived organizational support, social support, personnel support, efficacy, self-efficacy, collective-efficacy, work-life balance, family work relationship, work-family, quality of life, well-being
Personnel Support Programs	Family services, athletics, recreation, community, social support, social programs, fitness, health
Military	Army, Navy, Air Force, hierarchical, rank, specialty, civilian, lateral, arms (e.g., infantry), force, crew, detachment, squad, troop, unit, battalion, armament
Job Domain	high risk, risky, dangerous, healthcare, medical, emergency services, public safety, paramedic, nurse/nursing, divers, fire-fighters, police, aircrew, radio communication

After establishing the core concepts, primary keywords were then developed. The core concepts were the most important words used in the search as they represented the broad constructs relevant to military individual readiness research. The primary keywords ensured sampling of literature from several different domains within the core construct, and their use was guided by what emerged from the core concepts. For example, for the core concept of "individual readiness", primary keywords such as "competence", "organizational citizenship behaviour", "morale", and "commitment" emerged. The primary keywords were used to further focus the results of the core concept search. This had the result of narrowing the search to the most relevant articles.

2.2   Databases

As shown in Table 3, the following databases were the most relevant for searching the scientific, academic and military literature relevant to individual readiness.

Table 3. Databases used

Database	Description
PsycINFO	The PsycINFO database is a collection of electronically stored bibliographic references, often with abstracts or summaries, to psychological literature from the 1800s to the present. The available literature includes material published in 50 countries, but is all presented in English. Books and chapters published worldwide are also covered in the database, as well as technical reports and dissertations from the last several decades.
NTIS	National Technical Information Service is an agency of the U.S. Department of Commerce's Technology Administration. It is the official source for government sponsored U.S. and worldwide scientific, technical, engineering, and business related information. The database contains almost three million titles, including 370,000 technical reports from U.S. government research. The information in the database is gathered from U.S. government agencies and government agencies of countries around the world.
CISTI	Canada Institute for Scientific and Technical Information houses a comprehensive collection of publications in science, technology, and medicine. It contains over 50,000 serial titles and 600,000 books, reports, and conference proceedings from around the world.
Public STINET	Public STINET is available to the public, free of charge. It provides access to citations of unclassified unlimited documents that have been entered into Defense Technical Information Center reports collection, as well as the electronic full-text of many of these documents. Public STINET also provides access to the Air University Library Index to Military Periodicals, Staff College Automated Military Periodical Index, Department of Defense Index to Specifications and Standards, and Research and Development Descriptive Summaries.
DRDC Research Reports	DRDC Defence Research Reports is a database of scientific and technical research produced by and for the Defence Research & Development Canada. It is available online at pubs.drdc-rddc.gc.ca/pubdocs/pcow1_e.html.
Storming Media	Storming Media is a private company that resells reports published by the Pentagon and the US federal government. Storming Media has a vast collection of reports published on the military. Topics range from biochemistry to readiness to military strategy ethical decision-making, It is available online at stormingmedia.us.

2.3   Selection of Articles

The search of the databases generated more than 100 titles and abstracts. The research team reviewed these and scanned each for relevance. Priority was given to those articles that represented the core concepts, and higher priority was given to articles that discussed multiple core concepts than to articles that addressed only a single core concept. Some of the articles retrieved were relevant to the topic and potentially helpful to elucidating some aspect of readiness, but did not have either the relevance or quality necessary to be primary or core articles. These were classified and used as secondary articles. Once titles and abstracts were ranked according to relevance, the research team obtained as many of the primary articles as possible. Overall, the references comprised books, journal articles and technical reports from the behavioural sciences, military, and related domains.

2.4   Review of Articles

Once final articles were obtained, researchers began to review and write on the articles that pertained to various sections of the report. After reviewing approximately 15 articles and chapters, the research team developed a broad outline of the major issues. This outline was used to further categorize the applicability of the other articles and to focus the review of the remaining obtained articles. In all, approximately 35 primary articles were reviewed.

2.5   Structure of the Report

Chapter 1 of this report provides some background about this project, and presents the scope and deliverables. The current chapter describes the method used to initiate the review and to find and choose the articles for this review. Chapter 3 explores the concept of individual readiness, and reviews relevant models, measures and research related to readiness. Chapter 4 identifies 3 broad influences on military individual readiness evident in the literature (i.e., organizational practices and policies, skill training, and personnel support programs). Chapter 5 describes individual-and family-level factors that derive from these 3 broad influences. This discussion culminates in a draft model of military individual readiness. The final chapter identifies several potential areas of research and identifies specific research questions for a future program of military individual readiness research.

2.6   Limitations

This report has several key limitations that are important to note. The major limitation of this report involves the breadth of this review and number of unique constructs in play in relation to the limited number of primary articles (n = 35) that could be accessed for this report. Given the number of constructs, it would have been impossible to review the number of source articles necessary to draw strong conclusions in each of the relevant sections. Literally, the relationship between readiness (or readiness-related outcomes) and any one of the key constructs (e.g., job satisfaction, cohesion) addressed in this review could be the topic of its own literature review. To assist our efforts, we were required to cite patterns of findings from articles by well-respected authors within what we judge to be high quality sources, and we believe the patterns that we have identified are valid. However, the quality of the conclusions that we reach (e.g., our characterization of the findings within a specific area of research) is obviously dependent on our ability to identify the best sources.

Another limitation of this report is that specific research relevant to readiness within the Canadian Forces was scarce. Research stemming from the United States was more prominent than research within a purely Canadian context. Where necessary, then, we have relied on some American sources that provide valuable information relevant to readiness.

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3.   The Construct of Individual Readiness

3.1   Definitions

This section explores the construct of individual readiness. The first step in understanding a complex construct typically requires a definition. Unfortunately, there is no common and accepted definition of individual readiness within either the military literature or the scientific literature more generally. In fact, the assessment of Tucker, Sinclair and Thomas (2005, p. 277) is that "Despite its obvious importance, there is no real consensus on the concept of readiness or on the appropriate operational definition of readiness." Our review supports this somewhat pessimistic conclusion. Nonetheless, there is some agreement on what individual readiness is.

Merriam Webster (2008) defines the general concept of readiness as being "prepared mentally or physically for some experience or action" (http://www.merriam-webster.com/dictionary/readiness). Applied to an individual, then, this definition emphasizes mental and physical preparation as key components of readiness.

A range of other definitions come from the military domain. Reineck (1999) loosely defines readiness as "the state of being prepared for something about to be done or experienced" (p. 251). Sharpe and English (2006) use another term called personal operational readiness, and equate this term with individual readiness. At points in their paper, they describe individual readiness as the physical and mental preparation for deployment. At other points, however, they seem to broaden the concept of personal operational readiness (individual readiness) to extend to "the physical, operational and psychological preparedness of an individual to deploy" (p. 7). Their definition focuses on the psychological state (i.e., both preparedness to deploy and the ability to withstand the stresses of deployment), as well as on the ability to manage separation from relevant others. This definition is interesting because it seems to embed some of the more pragmatic aspects of operational readiness into the definition of individual readiness.

Tucker et al. (2005, p. 277) describe readiness simply as "the capability of an individual soldier or a unit to perform assigned duties." This definition makes no assertions about what might underlie this capability (e.g., training or motivation), simply that readiness relates to some sort of capability.

Influential researchers working within the military domain have argued that individual readiness is:

> "the extent to which an individual is prepared (trained), able (skills), and motivated (morale, desire, concern, etc.) to perform his/her job as part of the larger military mission" (Caliber, 1995, iii; as cited in Caliber, 2003).

This definition extends beyond the previous to emphasize the training, skills and motivation of the individual.

Another definition from the military domain (Bolstad, Cuevas, Babbitt, Semple & Vestewig, 2006a) is even more specific, defining cognitive readiness as:

> "possessing the psychological (mental) and sociological (social) knowledge, skills and attitudes (KSAs) that individual and team members need to sustain competent professional performance and mental wellbeing in the dynamic, complex, and unpredictable environments of military operations" (p. 1).

This definition considers both cognitive and social factors, but unlike most other definitions, does not specifically emphasize the importance of physical fitness.

Some military theorists have defined readiness as a multidimensional construct, the dimensions of which are impacted both directly by morale, welfare and recreation (MWR) programs and indirectly through the linkages between MWR programs and the intermediate outcomes (e.g., McGonigle, Casper, Meiman, Cronin, Cronin & Harris, 2005). This view of readiness constrains to only that which is promoted by MWR programs. In our view, however, a range of other elements not noted in this definition are likely to contribute to individual readiness.

Clearly, readiness has a motivational component in the views of many theorists. For example, Shamir, Brainin, Zakay and Popper's view (2000) of readiness is that it is a combination of group morale and collective efficacy. In short, they argue that group morale represents the motivational aspect of readiness, and that this is linked with a group sense of collective efficacy as beliefs about a group's ability to perform effectively.

One of the inherent difficulties in defining individual readiness is its relationship with the terms operational readiness, unit readiness and combat readiness. The term "readiness" can be applied to the state of individuals in terms of their physical and psychological readiness as well as to the readiness of the military unit and/or system to perform the necessary tasks. In the United States, for example, the combat readiness of all military units is periodically evaluated, in terms of personnel, equipment on hand, equipment serviceability and training (Morrison & Fletcher, 2002).

Similarly, Sharpe and English (2006, p. 1) argue that the term "operational readiness is often used by the CF, and most other armed forces, to describe the capability, usually rated on a scale from low to high of particular units to perform their assigned tasks." Similarly, unit readiness is also sometimes defined at the pragmatic level. Griffith (2006) argues that the conventional definition of unit readiness focuses on the pragmatics of deployment, with the U.S. Army defining *unit readiness* as "the ability of a unit to perform as designed" (p. 368). Doctrinally, the U.S. Army determines the readiness of company-sized and battalion-sized units by assessing them in four areas: personnel, equipment on hand, equipment serviceability, and training to meet mission-essential tasks (Griffith, 2006).

However, Griffith argues that the doctrinal definition of unit readiness is incomplete, and he argues that more focus on the human aspects of readiness is critical. Research by Sharpe and English (2006) defines operational readiness from a more human perspective and works to distinguish it from individual readiness:

> "Unlike operational readiness, personal readiness is not measured in combat skill levels or the time needed to respond to a call out, but, for the most part, in the degree to which an individual is psychologically prepared to deploy and/or conduct operations and to withstand the mental challenges associated with the operation, including separation from family and other support groups" (p. 7).

This definition casts individual readiness as involving the ability to manage the stresses of deployment.

Unit readiness definitions that are more centred on the human often define unit readiness by substituting "unit" for "individual" in the definition of individual readiness (i.e., being trained, able and motivated; see Griffith, 2006). However, other researchers have argued that unit readiness represents something more than the aggregated readiness of multiple individuals. Following a pattern in team research, which has increasingly argued that the whole is more than the sum of its

parts), readiness theorists and researchers have also come to argue that, although unit readiness is closely linked with individual readiness, it is "…not simply an aggregation of individual readiness" (Caliber, 2003). Some group properties are not explained by the sum of individual properties, and these group properties have implications for the individuals in the group (Schneider & Angelmar, 1993; as cited in Caliber, 2003).

Other definitions relevant to individual readiness address only specific forms. For example, Morrison and Fletcher (2002) focus on the concept of cognitive readiness. They describe cognitive readiness as the degree to which a person is prepared mentally in order to perform in a complex and unpredictable military environment. They argue that

> "cognitive readiness is the mental preparation (including skills, knowledge, abilities, motivations, and personal dispositions) an individual needs to establish and sustain competent performance in the complex and unpredictable environment of modern military operations" (p. I-3).

Cognitive readiness prepares a soldier for the unpredictable and stressful battlespace; in other words, the "ability to expect the unexpected and be ready to deal with it rapidly and successfully" (Morrison & Fletcher, 2002, p. I-3). According to Morrison and Fletcher, cognitive readiness is mainly influenced by psychological factors rather than physical or social factors. These psychological factors include intelligence, personality, disposition, motivation, emotion, beliefs, and attitudes.

Despite their caveats, however, we would argue that cognitive readiness is too narrow a term to wholly represent individual readiness. Although individual readiness is clearly a product of an individual's skills, knowledge and experience, it seems wrong to detach an individual from the social, organizational, and even cultural environment in which they reside – all of these different levels (to varying degrees) are likely to impact on individual readiness.

It is also important to distinguish the readiness concept from that of operational effectiveness. Readiness is "the *potential* of units or individuals to perform well in combat or in other military operations. It is usually measured by assessing a subset of hypothetical elements or components of effectiveness. Thus, readiness represents an estimate or prediction of effectiveness" (Morrison & Fletcher, 2002, p. I-1). Effectiveness is typically conceptualized in terms of actual outcomes, and represents the sum of a unit's performance. On the other hand, readiness is the potential to perform well.

Defining readiness as the potential to perform well in operational situations shows that it is, in some ways, a latent construct. This definition creates a number of challenges. First, there is no agreement on what the hypothetical elements are – therefore, any definition is subject to the whim of the person doing the defining. Second, if individual readiness is mere potential, how can it be measured? Potential is not immediately observable, and only exists insofar as it is instantiated in action.

A definition of readiness by Reineck (1999) seems to consider not only the individual, but the group and the system as well: "Individual readiness is 'a dynamic concept with dimensions at the individual, group, and system levels, which, together, influence one's ability to prepare to accomplish the mission" (p. 253). This definition seems to best capture the notion that whatever an individual's personal state of readiness, this state is only one part of the equation. Simply having an individual at the ready will not necessarily lead to overall operational effectiveness unless this individual has the necessary supports within his or her larger system. This system could be one's family system or the broader organizational structures and supports that are necessary to achieve a

true sense of readiness. This definition also implies that a lack of readiness in any of these systems could also interfere with the individual's personal ability to achieve and maintain readiness.

Similarly, McGonigle et al. (2005) argue that there are four types of readiness, namely service, unit, individual, and family readiness, as represented in Figure 1.
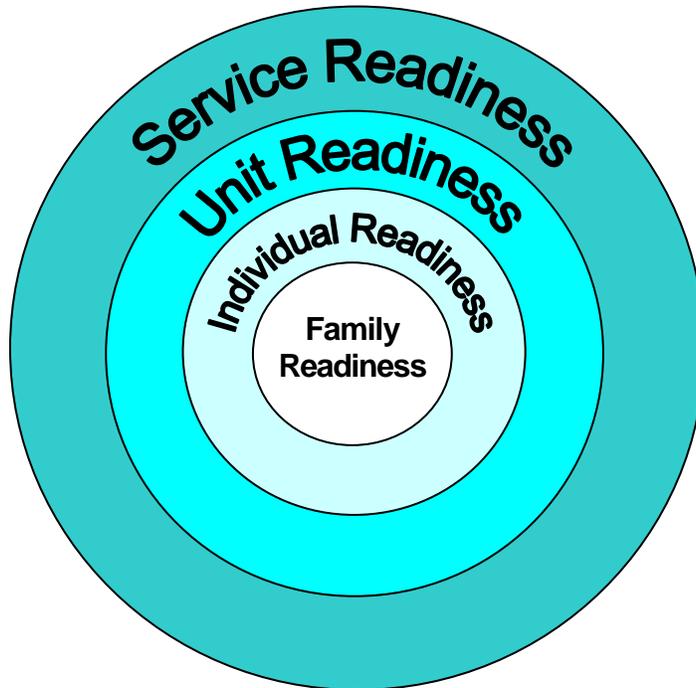
Figure 1: Levels of readiness

The outer shell of the circle is service readiness. This refers to the fact that "readiness is a collective characteristic of the armed services" (p. 28), and is dependent on the readiness of the individual units that make up the service. The units are dependent on the individuals who make up that unit. These individuals are reliant on the readiness of their families. Thus, when a family is not ready for deployment, the entire service may suffer.

In our view, however, there are more layers of complexity than depicted here, including the broad organizational entities (e.g., CF/DND) that can impact on individual readiness as well as societal influences. The key issue here is that a person's individual level of readiness is comprised of and supported by many other systems.

Although the many descriptions of readiness evident in the literature focus on the pragmatic aspects of readiness derived from training, readiness is also understood as a way of being more so than the simple sum of one's skills. As one focus group participant in the Reineck (1999) study argued,

> "Readiness is what you are, not what you know. That's a frame of reference we have a problem accepting. It's not to do something, it's to be. We need to change it from something that's out there that you might have to do….to what you are" (p. 19).

This way of conceptualizing readiness seems to extend it to a more holistic view rather than readiness being solely based on inherent technical competency. This conceptualization also argues

that readiness extends beyond the acquisition of knowledge, and becomes more engrained into one's way of thinking and being (i.e., becomes a characteristic of one's state of mind, rather than a transitory influence).

At the same time, however, some researchers have argued that readiness is malleable to some extent. For example, Thompson and McCreary (2006, p. 4-3) have argued that

> "the notion of mental readiness should be thought of as a trainable skill that can be acquired and developed, much like physical fitness, as opposed to the traditional view of the psychological, as static aspects of personal temperament, character, and strength."

This suggests that just as physical fitness can be improved through exercise, readiness can be improved through training and preparation. In theory, this means that any person exposed to training and preparation has the potential to achieve higher levels of readiness.

In some sense, the depiction of readiness as being "what you are" versus readiness as being a trainable skill may seem somewhat incongruous. Combining these two perspectives is possible if readiness is seen as a relative rather than absolute construct. It may be the case that any person is capable of achieving higher states of readiness through preparation and training, but being able to integrate this training into one's own sense of being may well represent the highest possible form of readiness, which only a select group of people may achieve. At this point, however, this idea is only speculative.

A critical part of any definition involves distinguishing the construct from other related constructs. There are, of course, a range of other constructs that are relevant to individual readiness, but not wholly overlapping with it. These include psychological resilience and well-being. Psychological resilience is a construct that is closely related to, but distinct from individual readiness. Although there appears to be as little agreement about definitions of psychological resilience (Wald, Taylor, Admundson, Jang & Stapleton, 2006) as there is for definitions of individual readiness, most definitions seem to focus primarily on the individual's ability to "bounce back" from a single incident of short-lived trauma. As Wald et al. (2006) have argued, resilience is often defined by "the occurrence of short-lived, mild psychological distress after a trauma, followed by a return to a pre-trauma level of adjustment" (p. 1). This resilience, they argue, is distinct from recovery from a trauma over a somewhat longer period of time. Researchers working in the U.S. Army define psychological resilience as "…the sum-total of psychological processes that permit individuals to maintain or return to previous levels of well-being and functioning in response to adversity" (Castro, 2008, p. 5). This definition suggests that resiliency may reside in the ability to return to one's "normal" state after experiencing a stressful or difficult event. Resilience is also the product of multiple types of support, including "psychological and dispositional attributes and the social context (e.g., family, external support systems)" (Wald et al., 2006, p. 3). In this sense, then, resilience and readiness are similar. There is, however, a key distinction that might separate them as constructs.

From our perspective, readiness is relevant and important throughout the entire cycle of deployment. However, as a concept, it seems most relevant in the preparatory stages leading up to deployment, as well as at a general level throughout in response to the typical stresses and strains of deployment. Resilience is most relevant during deployment, and represents the "bounce back" ability after serious, severe and/or atypical stressors. Presumably, people with high levels of readiness may also be expected to show higher levels of resilience and vice versa. However, it makes sense to talk about readiness whether or not the individual has endured extremely difficult

experiences, whereas the cited conceptualizations of resilience seem to require the experience of adversity as a key element.

Well-being is another construct that is also prominent in the literature related to readiness. The U.S. Army Well-Being Strategic Plan defines well-being as "the personal – physical, mental, and spiritual – state of Soldiers….and their families that contributes to their preparedness to perform and support the Army's mission" (Keane, 2001; as cited in Booth, Segal & Bell, 2007, p. 68). Thus, wellness is described as an inactive construct contributing to preparedness or readiness. Readiness, on the other hand, has a sense of "pushing forward" with potential activity associated with it.

Individual readiness is a complex construct with a range of nuances. As illustrated above, the existing definitions of readiness vary in terms of their applicability to the military domain. Recently, there have been efforts to broaden the construct. The next section details a number of models of individual readiness that both highlight those elements that define it more precisely as well as introduce potential influences on readiness.

3.2　Models of Individual Readiness

In the available literature, there are several models that include readiness as a construct, but which otherwise give relatively little attention to readiness as a whole. There are 3 relatively developed models, including a model by McGonigle et al. (2005) exploring the impact of morale, welfare and recreation programs on readiness, work by Morrison and Fletcher (2002) that posits several key dimensions of cognitive readiness, and a model by McDonald (2006) exploring readiness within the policing domain. In addition, a constrained but important model by Castro and Adler (1999) explores the impact of operational tempo on readiness and performance. Each of these models is explored in the sections that follow.

The most prominent and developed model of readiness relevant to the military domain has evolved progressively through work by Caliber and associates (1995; 2003), and refined by McGonigle and colleagues (2005). As these models show a high level of redundancy, only the final McGonigle model will be described, with relevant developments in other models noted as necessary. The model created by McGonigle et al. (2005) focuses on personnel support programs as the antecedents of readiness, the mediators of readiness, and the readiness components (as shown in Figure 2).
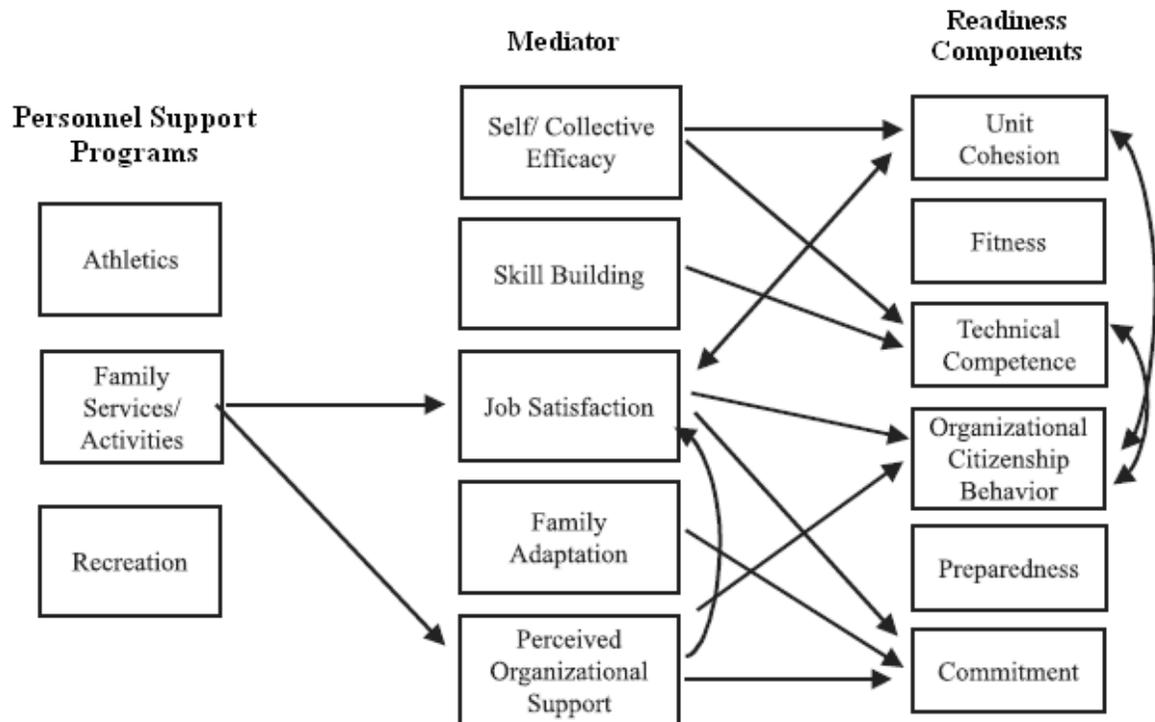
Figure 2. Personnel support programs and readiness links (McGonigle et al., 2005)

Moving from left to right, the first column includes antecedents to readiness. These are personnel support programs such as athletics (basketball, softball), family services (child development centres, youth programs), and recreation (libraries, arts and crafts, community centres, entertainment).

The next column in the model identifies five factors hypothesized to mediate the relationship between individual readiness and personnel support programs. Self efficacy relates to one's belief in the ability to perform tasks (Peterson, Mitchell, Thompson & Burr, 2000; as cited in McGonigle et al., 2005). Skill building is the enhancement of knowledge, skills and abilities (KSA) for technical competence. For example, practice at the range with appropriate feedback will increase a soldier's skill as a rifleman. Job satisfaction relates to the attitudes toward one's job. Family adaptation is related to both the external and internal dimensions of the family. The external dimensions include the fit between the military and the family. The internal dimensions relate to behaviour and reliance between family members. Thus, family adaptation is the motivation of the family to cope with the demands of the military and achieve their goals. An individual's perceived organizational support (POS) relates to perceptions about one's organization caring and valuing its members (Eisenberger, Fasolo & Davis-LaMastro, 1990; as cited in McGonigle et al., 2005).

The right column in the model identifies the components of readiness. McGonigle et al. (2005) argue that readiness is comprised of 6 dimensions. Unit cohesion consists of task cohesion and social cohesion. Task cohesion relates to group performance and objectives, while social cohesion relates to the relationships within the group. The next dimension, fitness is conceptualized as relating to both physical and mental health. Technical competence is argued to relate to both job and non-job specific skills. Organizational citizenship is hypothesized to involve discipline and motivation, and include sportsmanship (accepting poor conditions without complaining), civic

virtue (behaviour showing commitment to the standing of the organization) and helping behaviour (preventing problems and encouraging others). The next factor is preparedness. This is defined as the individual in relation to deployment, and focuses on issues of having things in place for one's family (e.g., during deployment, and/or in the case of injury or death). Commitment relates to identification and one's sense of responsibility toward their organization (e.g., the Army) and includes three subcomponents of commitment (e.g., continuance, affective and normative) commitment. The lines joining the model components indicate the links that they believe are empirically established by previous research.[1]

The McGonigle et al. (2005) model is the most fully developed in the literature relevant to military individual readiness. The model's focus on personnel support programs as the antecedent of readiness is certainly justified, as personnel support programs have the potential to have a positive impact on readiness. However, this focus also limits the model's range. A wider range of influences, such as the CF organization as a whole, the regimental system, leadership, etc., will all need to be considered to advance a comprehensive understanding of readiness. Moreover, McGonigle et al.'s model conceptualizes readiness as the combination of 6 different factors. At a stringent conceptual level, we would argue that mixing individual level factors (e.g., technical competence) and group level factors (e.g., unit cohesion) may be problematic. Although there seems to be some evidence that these factors are important aspects of individual readiness, there is also a sense in which individual readiness may be more than the sum of these parts. Despite the real practicality of this model for understanding the constructs associated with readiness and its use for research, furthering individual readiness in the military context will require consideration of these challenges.

Another theoretical model relevant to individual readiness was developed by Morrison and Fletcher (2002). In this model, 10 psychological constructs are identified which are said to underlie cognitive readiness (see Table 4).

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[1] Relationships between the personnel support programs, the mediators and the readiness components will be discussed in their corresponding sections. Overall, there has been research in the areas of mediators and personnel support programs (POS, job satisfaction and family adaptation) and mediators and readiness (job satisfaction, POS, and efficacy; commitment, OCBs, unit cohesion, fitness).

**Table 4. Components of cognitive readiness
(adapted from Morrison & Fletcher, 2002).**

Component	Relevance to Readiness
Situation Awareness	The ability to perceive and comprehend all relevant elements of the current military situation and to project status into near future
Memory	The ability to recall and/or recognize patterns in operational problems for which there are likely solutions
Transfer of training	The ability to apply knowledge and skills learned in one context to another context
Automaticity	Allows very rapid responses that do not substantially impair other cognitive processes
Emotion	The ability to devise and select appropriate COAs despite states of heightened emotion and stress
Problem solving	The ability to analyze the current situation, understand goals, and develop a COA to reach them
Decision-making	Reviewing different plans of actions, assessing the probable impact of each, selecting one, and committing resources to it
Mental flexibility and creativity	The ability to generate, adapt, and modify COAs rapidly, as required in response to variable situations
Metacognition	The ability to monitor, assess, regulate, and enhance one's own cognitive processes
Leadership	Patterns of motivational, technical, and interpersonal knowledge and skills that encourage and support other in carrying out a designated plan of action

Situation awareness requires one to perceive, understand, and predict the surrounding environment and the people in that environment (e.g., Endsley, 1988; as cited in Morrison & Fletcher, 2002). Having situation awareness makes a soldier cognitively ready for what could be happening next. When situation awareness is high, personnel are likely to understand their environment and to be prepared for what may happen in that environment.

Memory and *transfer of training* are complex components of readiness. A main issue with memory is that learning and retaining information are best when conditions are the same (e.g., sitting in the same seat all semester during lectures and then taking an exam in that same seat).

Automaticity is the ability to perform a task without conscious control (e.g., driving) and can be measured by a dual-task method (perform primary task and easy secondary task) or by a visual/memory search task (find the targets amongst distracters).

Strong *emotions*, like anxiety or fear, can be frequently experienced by military personnel, which, according to Morrison and Fletcher, can fog one's cognitive capacity. Cognitive readiness would entail controlling one's emotion in the heat of battle to select a reasonable course of action. Similar to memory, where retrieval is often best under similar learning conditions is the mood dependent emotional phenomenon, i.e., when people learn something while experiencing a specific emotion (e.g., happiness), memory retrieval is easier when feeling the same emotion. Perhaps then exposing soldiers to anxiety and stress during training would benefit later performance.

Problem solving and *decision making* are also critical components of readiness. Decision making methods include trial-and-error, proximity (looking ahead to the next step), fractionation (dividing

problem into sub goals), and knowledge-based methods (using prior knowledge). Naturalistic decision-making approaches (NDM; e.g., Klein, 1989; as cited in Morrison & Fletcher, 2002) have been proposed as an explanation of how people make decisions under time pressure and with high levels of uncertainty. According to NDM, a decision maker assesses the situation, comes up with a solution, and mentally applies this solution. If the outcome is acceptable, the solution is implemented; if the outcome is unacceptable, a new solution is generated.

Mental flexibility and creativity are also indicators of readiness. Methods used can be weak or strong. Strong methods expose what was learned in military school (knowledge and skills). Weak methods are appropriate for ill-structured problems. For example, war gaming is taught in military courses and involves thinking through a problem and proposing a solution while a more knowledgeable person points out the flaws in the solution. This type of training prepares the soldier to think of various solutions to problems and of various problems in their solutions.

Metacognition and *leadership* are other indicators of readiness. Metacognition is the awareness of one's own cognitive processes. Several metacognitive skills are likely to be relevant to readiness, including self-monitoring and assessment, focusing on task essentials, planning, and the use of strategies. Although being aware of these processes can increase readiness, metacognition is very difficult to teach and to achieve.

In summary, Morrison and Fletcher (2002) argue that cognitive readiness represents preparation for the unexpected. Thus, to achieve cognitive readiness, military personnel must:

- Be aware of their environment and thought processes (situation awareness, metacognition),

- Train frequently under similar conditions (memory, transfer of training, automaticity, emotion), and

- Analyze the situation (problem solving, decision-making, mental flexibility, creativity) along a range of dimensions (e.g., situation awareness, memory and training, metacognition, automaticity, problem solving and decision making, etc.).

It is important to note that although Morrison and Fletcher (2002) argue that training is an important tool to develop cognitive readiness, they also argue that some components of cognitive readiness are innate traits that cannot be changed or easily modified. For instance, emotions are innate feelings that cannot be easily changed. However, the skills necessary to recognize and deal with those emotions can be taught.

The Morrison and Fletcher (2002) model clearly has a very different focus from that of McGonigle et al (2005). The McGonigle model seems to be best understood as a model of the many different influences on individual readiness. The Morrison and Fletcher model, however, seems to speak more directly to what individual readiness is at a psychological level. This model describes what differentiates a person who is individually ready from a person who is not. For the purposes of working to understand readiness in its full dimension, however, this way of thinking about readiness seems somewhat constrained. Because it focuses primarily on cognitive factors, the model overlooks the broader set of influences that are likely to impact on readiness, such as social and contextual factors.

Similarly, McDonald's (2006) work, exploring the relationship between mental readiness and performance excellence within the police force, adopts a cognitive approach. Focusing on mental readiness, her definition is "being psyched, totally ready, totally prepared" (Orlick, 1989; as cited in McDonald, 2006, p. 111). Due to the high intensity and responsibility of police officers, mental, physical and technical readiness were all identified as being critical to the performance of both

officers and civilians. An extensive study explored the key components of mental readiness within the Ottawa Police Force, with a view to identifying the critical influences that promoted mental readiness, as well as the factors that might detract from readiness. This study was influenced by previous research with high performance athletes (Orlick, 1989; 1992; 2002; as cited in McDonald, 2006), showing the importance of several readiness dimensions (shown in Figure 3).

Figure 3. Orlick's "Model of Excellence" (McDonald, 2006)

McDonald (2006) argues that several readiness-related constructs are key to promoting high levels of excellence in elite athletes. Subsequently, her study explored if readiness had a similar quality within the policing domain.

McDonald (2006) had highly respected police officers (n=47) complete questionnaires and participated in interviews assessing mental readiness and performance. Results showed that these experts rated mental readiness as more crucial to performance than physical and technical readiness. In other words, without mental readiness, police officers argued that they were more at risk for poor performance. Analyses of these interviews also confirmed the importance of several "success elements" noted in previous research (Orlick, 1989; 1992; 2002; as cited in McDonald, 2006).These 7 success elements included the following:

- Distraction controls (e.g., de-escalation, task orientation, involvement of others, crisis refocus strategies);

- Full focus (anticipation, equipment confidence, presence and peer trust, enjoyment/relaxation and rhythm);

- Commitment skills (e.g., empathy and compassion, job satisfaction and enjoyment, professional discipline);

- Mental preparation (e.g., positive thinking, professional discipline, job awareness and recognized risk, rest, lessons learned);

- Self-belief (confidence through mentoring and training, taking personal credit for success);

- Positive imagery (positive thinking, vivid imagery and visual triggers); and

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- Constructive evaluation (self-evaluation, other evaluation: team, formal, public, informal, suspect).

Factors identified as possible negative impacts on readiness included shift work fatigue, extensive overtime, lack of proper preparation techniques and mentoring, and perceptions of being misunderstood and undervalued. Several different types of performance blocks were also identified by the police officers interviewed. Such blocks could occur before or during a call and include:

- Inherent blocks (classic: crises, street disrespect, lulls, shift work; general: personal fears, team dynamics, etc; rookie error: stress, boredom, losing control);

- Organizational blocks (workload, coaching issues, not being promoted, public complaints); and

- External blocks (fatigue, environmental, family/work conflicts, day-to-day pressures, previous call).

As a whole, then, McDonald's (2006) study identified a range of factors impacting readiness, some unique and some already noted in the readiness literature. A key part of readiness in the McDonald model is the ability to shut out extraneous factors in order to focus fully on the task at hand. This research, then, provides a good deal of information about mental readiness within a policing context. As such, the model has a good level of applicability to the military domain. Certainly, issues such as focus and ability to control distraction are important aspects of readiness.

In our view, however, a major problem with this model is the lack of precision in defining core constructs and an overextension of the data to show the fit of this model. For example, within the category of "distraction controls" are a range of example behaviours derived from interviews with police officers. Looking closely at these behaviours, it seems unclear exactly why a given behaviour belongs in one category versus another. The category "mental preparation", for example, contains a number of very diverse behaviours, ranging from "positive thinking" to "communicating internally" to actual preparatory activities. Moreover, "positive thinking" is also argued to be an important part of the "positive imagery" category, but there is no description of whether positive thinking in these 2 categories has the same quality or not. Our opinion is that increased rigour in defining the categories and fitting behaviours into the categories would yield a more coherent account of readiness, which would thereby provide the grounds for a more focused research program.

Other more constrained models in the literature are also relevant to individual readiness. For example, the operations tempo (OPTEMPO) readiness model by Castro and Adler (1999) explores the relationship among operations tempo, readiness and optimal levels of soldier and unit performance. In this model, readiness is defined as "the state of being prepared mentally or physically for some experience or action" (p. 7). The relationship among OPTEMPO, readiness and performance is shown in Figure 4.
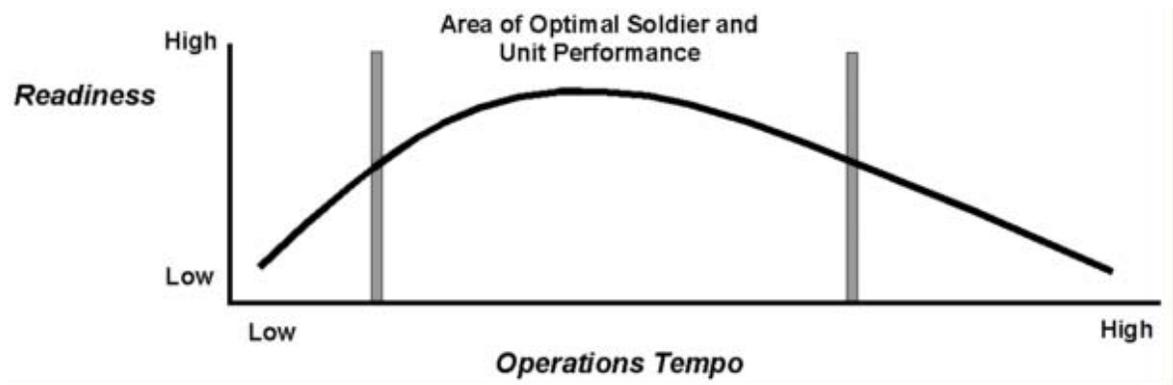
Figure 4. OPTEMPO model (Castro et al., 1999b)

It is important to examine the assumptions of this simple model in more detail. First, starting from the left side, it can be seen that readiness and performance will be lowest when the operational tempo is low. This suggests that high tempo (e.g., training or actual operations) is conducive to high readiness and performance. On the other hand, the slope of the line leading to higher levels of performance also argues that relatively little can positively alter performance. As Castro et al. (1999b) argue:

> "…a single training exercise that is well planned and executed can immediately move a unit from the low-end on the readiness curve to a point on the readiness curve that is well within the optimal zone of unit and soldier readiness" (p. 5).

On the other end of the spectrum, however, the model also argues that very high OPTEMPO is also not conducive to optimal performance or readiness. Note that the slope of the decline is less prominent than at the other end of continuum. The less pronounced slope suggests that even some decrease in the readiness curve does not necessarily move the soldier or unit to an unacceptable level of readiness. Rather, Castro et al. (1999b) argue that this is only problematic if and when readiness levels move outside of the optimal performance zone. And, in the centre of the figure, optimal levels of readiness are associated with higher levels of soldier and unit performance. Castro et al. (1999b) note that this area is also the widest band in the diagram, representing their belief that high levels of performance are typically sustained across a wide range of OPTEMPO levels. They also argue that movement is equally likely to occur in both directions along the readiness curve. This suggests that with an opportunity to rest, for example, units can return to improved levels of readiness. Alternatively, this suggests that readiness can move outside of the optimal zone if such an opportunity is not provided. In accordance with the OPTEMPO model, then, soldiers perform best when they have achieved a high degree of readiness and the pace of operations is at moderate levels rather than at either high or low levels.

The OPTEMPO model is an interesting and important one. While the model says little about what readiness is or the detailed factors that impact readiness, the model does provide a compelling view of the impact of OPTEMPO on individual and unit performance. One of the potential dangers in thinking about readiness is that one might easily assume that higher deployment levels and/or demands on military personnel would contribute negatively rather than positively to influence. Indeed, as shown previously by Castro et al. (1999a), being active and having constant pressure may promote enhanced rather than degraded readiness.

Sadacca, McCloy and DiFazio (1993) developed a theoretical model of individual readiness to conduct research on behalf of the Army Research Institute in the United States. They explored a range of factors thought to impact on individual readiness, including organizational factors, training, family, and needs and expectations at the individual level. The goal of Sadacca et al.'s research was to generate a large number of potential variables that could impact on individual readiness in order to narrow down the number to a more usable set for future research. Their theoretical model is presented in its entirety in Figure 5.
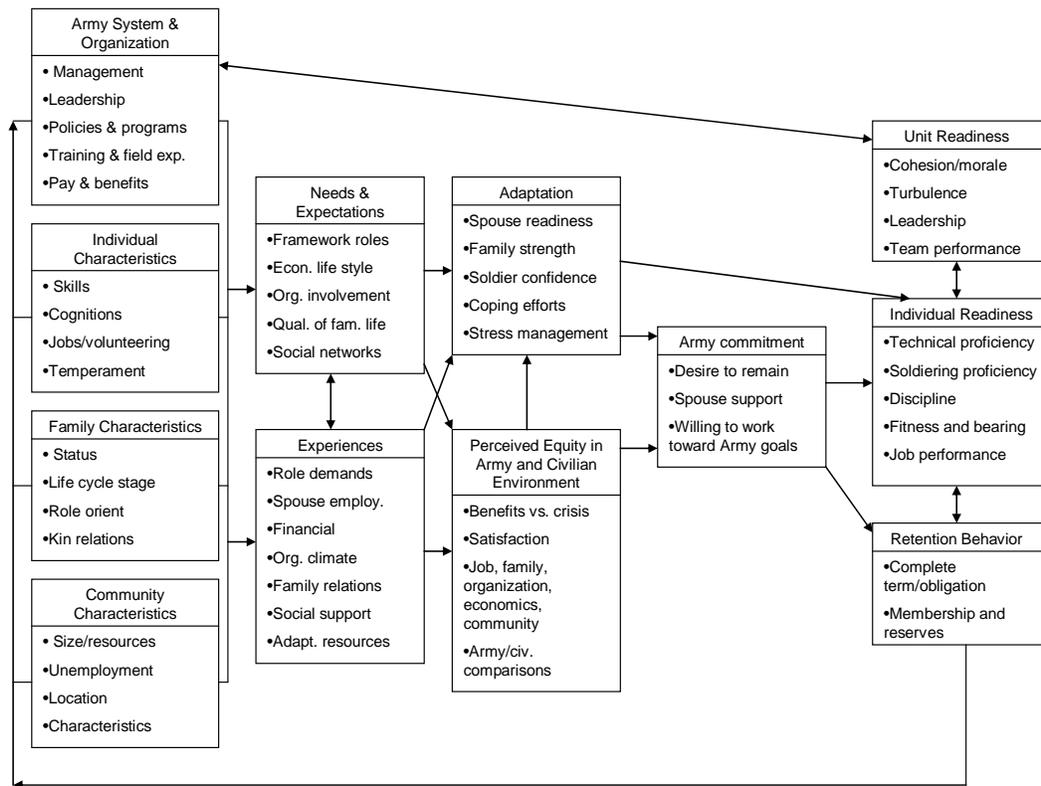
Figure 5. Individual readiness model (Sadacca, McCloy, & DiFazio, 1993)

Sadacca et al. (1993) collected data that tapped the many dimensions outlined in the model. Hierarchical regression analyses were used to reduce the number of variables, and the reduced set of variables was then explored using structural equation modelling. Analyses showed that the most influential indicators of individual readiness were the characteristics of individual soldiers, such as their rank, grade, and their Armed Forces Qualification Test (AFQT) percentile. With respect to family-level influences, the most prominent was the perceived unit leadership support for soldiers and their families. And, although individual readiness was impacted by family issues, the strongest impact of these issues was on soldiers' intention to stay in the Army.

Unfortunately, the sheer size of the effort in this research makes it difficult to assess the scientific credibility of this work. What is clear is that a more constrained approach with clearly defined measures might have been preferable, in order to draw stronger conclusions from the available data. For example, given the large number of measures included in the model, even one inaccurate

measure could distort the results derived from the hierarchical regression analysis. The strength of the initial model, however, is that it provides a comprehensive overview of the realm of individual readiness. More focused and constrained approaches may well yield better results.

The models presented in this section all provide important aspects of individual readiness and thus have unique strengths. However, no model seems to include all of the relevant pieces. As noted, the McGonigle et al. (2005) model is strong in terms of identifying individual, family and organizational influences on readiness, but offers only a limited perspective of readiness as the product of personnel support programs. The Morrison and Fletcher (2002) and the McDonald (2006) models, on the other hand, both provide a good window to the psychological profile of an individual who is at a high level of readiness, but defines readiness purely in cognitive terms, leaving out important motivational, social and contextual factors. The OPTEMPO model (Castro & Adler, 1999) presents a limited view of readiness in relation to OPTEMPO and optimal performance. Nevertheless, these models advance our conceptual understanding of individual readiness, requiring us to further disentangle the many elements to arrive at a coherent, all encompassing model for a future research agenda. To assist in this effort, it is also important to incorporate some of the previous measures and research in the area of military individual readiness. The next section addresses some of these efforts.

3.3 Measures of Individual Readiness

Once constructs have been defined and models formed, such models (whole or in part) need to be tested. This requires measures of the construct of interest. We found several attempts to develop measures to assess individual readiness. This section reports on discrete efforts to create and/or validate measures of readiness. Research described in other sections of this report will describe efforts to measure readiness in service of specific research goals.

Perhaps not surprisingly, several efforts to capture individual readiness have originated in the military domain. In a series of studies, researchers worked to develop (Reineck, 1999) and to validate (Reineck, Finstuen, Connelly & Murdock, 2001; Wilmoth, 2007) an individual readiness measure called the Readiness Estimate and Deployability Index (READI). This instrument was developed to support the U.S. Army Reserve (USAR) Medical Command, reported to contain about 68% of the U.S. Army's total medical assets. Arguing that previously accepted indicators of individual readiness had been "...reduced to measures and reports based on indicators such as weapons qualification, receipt of immunizations, possession of a will, family support plan, and gas mask inserts" (Reineck, 1999, p. 255), these researchers sought a better way of conceptualizing the readiness of military nurses.

These researchers argued that nurses who are deployed use very different skills than nurses who are not deployed, which complicates issues of readiness. For example, West and Clark (1995; as cited in Reineck, 1999) described how deployed nurses were forced to adapt to filth, difficult living conditions, blowing sand, a lack of supplies, discomfort and danger. The implication of this is that readiness is likely to be best understood in deployed environments, because only those environments fully test individual preparedness. Reineck (1999) also notes that nurses are required to be ready for deployment, as well as prepared for a homeland emergency.

Reineck had 30 military nurses participate in a focus group in which they discussed the components of individual readiness. Based on these focus groups, Reineck (1999, p. 253) categorized readiness into 6 dimensions:

- Clinical nursing competency (technical proficiency, skills with field equipment, physical assessment skills, clinical decision making, and trauma/triage skills);

- Operational competency (understanding the factors that influence care, understanding how things work, improvisation, basic knowledge and terminology);

- Soldier/survival skills (weapon familiarization, tactical proficiency and living safely);

- Personal/physical/psychosocial stress (personal medical supply, stress relieving material, family and peer support, fitness, and security);

- Leadership and administrative support (updated family care plans, understanding command structure, communication, eliminating socialization, continuing education, and welcome packages); and

- Group integration and identification (group history, trust, effective working relationships and communication).

Reineck (1999) found competency to be a common dimension mentioned in the literature. Competency relates to various areas relevant to readiness such as soldier skills, survival skills, skills related to the task, operational understanding, and technological understanding. These knowledge bases can prepare soldiers for their tasks, communications, and unexpected events. Although it would be impossible for a soldier to be completely prepared for anything that will or could happen during operations, refining their skills prior to deployment may have a positive effect on readiness.

In 2001, Reineck had Subject Matter Experts (SMEs) create items related to the six dimensions of readiness outlined above to develop the READI questionnaire. Reineck then had 63 Army Nurse Corps officers complete a pilot test of the initial READI questionnaire. Results showed most nurses reported medium to high clinical nursing competency. Nurses experienced high levels of family support and preparation, moderate levels of stress, and good physical and mental health. Nurses also reported moderate readiness levels related to coping with death, carnage, stress, weather and lack of privacy; and high levels of readiness related to adjusting to crowdedness and sleeping arrangement. Perceived levels of leadership were low, indicating nurses felt their leaders were not concerned about the soldiers, did not feel responsible for the unit, and did not keep members informed.

Analyses of the structure of these questionnaire items showed that they loaded on 6 prominent dimensions. These dimensions match those posited in Reineck (1999) except the Personal/physical/psychosocial stress dimension split into an Individual/physical stress dimension and Social stress dimension. Internal consistency estimates ranged from 0.78 to 0.95, while test-retest reliability estimates were between 0.48 and 0.83. Overall analysis shows high reliability and content validity in this sample. In conclusion, the author argued that this research provides some evidence that the READI questionnaire is a valid and reliable instrument used to assess nurses before deployment.

Following on from this early work, a more recent study used the READI instrument (Wilmoth, 2007) to compare the operational readiness of Army nurses and enlisted medical personnel. Researchers had 52 nurses (officers) and 40 enlisted personnel complete the 93 item READI instrument. Results showed that officers considered themselves most competent in clinical and operational skills, whereas enlisted personnel saw themselves most competent in soldier/survival skills. Unfortunately, the only other findings noted in the report were so specific to the domain

(e.g., competence in using ventilators or controlling infection) that they were irrelevant to the current report. Wilmoth concluded by recommending streamlining of the READI survey, and a consistent 5-point response set instead of multiple response sets.

Although the READI instrument is clearly relevant only to a specific domain, it does provide some important information about how to measure individual readiness. To its credit, the READI instrument was developed to meet a very pragmatic need, and arose from focus groups working to understand and then capture factors related to readiness. Looking at its 6 components, it is clearly in line with other common conceptualizations of individual readiness (e.g., McGonigle et al., 2005). The READI includes a full spectrum of items likely to be relevant to individual military readiness within this specific domain, combines different forms of competency with personal, physical and psychosocial readiness, and considers the role of the leader and organization in readiness, as well as group integration and identification. Importantly, different influences on readiness are also given consideration, in questions related to organizational, unit and family factors. Unfortunately, there were some issues with internal consistency for 3 of the 6 key components of readiness (Wilmoth, 2007) and this scale seems to still be at a relatively early stage of development. In a sense, it also seems that many of the most interesting questions that could be asked with this instrument are yet to be asked. This might include, for example, how some of the readiness indicators relate to other outcomes such as unit or individual performance and retention. The recommendations offered by Wilmoth (2007) will hopefully help to provide more focus to the instrument and make subsequent investigations more useful.

Consenzo, Fatkin and Patton (2007) describe a measure developed at the U.S. Army Research Laboratory called the Readiness Assessment and Monitoring System (RAMS). On the basis of a literature review, they worked to identify several measures to be included in the RAMS. They argue that their measure aims to tap two target areas, including cognitive readiness and performance under stress. They argue that "…an individual's susceptibility to stress and his or her ability to adapt is an integral component of cognitive readiness" (p. B96). To tap both of these dimensions, the researchers identified several tools, including measures of stress assessment (self report), a field practical measure, a physiological measure of stress (plasma hormones), and a cognitive assessment measures (see Table 5).

Table 5. Components of the Readiness Assessment and Monitoring System

Categories	Measures	Description
Background screening information	General Information Questionnaire	Demographics and information regarding fitness, health, residency, and life experiences
	Life Events Form	Current personal stressors and available supports
Trait characteristics assessment battery	Zuckerman-Kuhlman Personality Questionnaire Form III	5 components of personality: activity-energy, aggression-hostility, sociability, neuroticism-anxiety, and impulsivity-sensation seeking
	Multiple Affect Adjective Check List-Revised Trait Form	5 components of affect: anxiety, depression, hostility, positive affect and sensation seeking
	Revised Ways of Coping CheckList	5 coping efforts: problem-focused, social support, wishful thinking, blaming self and avoidance
	Uncertainty Measures related to coping with uncertainty and decision making styles	Need for Cognitive Structure Ability to Achieve Cognitive Structure Uncertainty Response Scale
Psychological state characteristics assessment battery	Multiple Affect Adjective Check List-Revised State	Current feelings of affect
	Situational Self-Efficacy	Perceived ability of success
	Specific Rating of Events Scale	Rating stress in different contexts
	Salivary Amylase Field Assay Kit	Physiological stress assessment which measures the activity in the sympathetic nervous system
	Army Cognitive Readiness Assessment	This is a computer-based testing system that provides a tool for "mapping cognitive functions to critical task demands"

The general idea of the RAMS is that it can be used to provide profiles "…of the type and intensity of the individuals' stress response across various operational settings, and identifies the trait and state factors contributing to these profiles." (Cosenzo et al., 2007, p. B98). Depending on the target research question, then, the RAMS can be given to participants before the experiment (baseline), before the stress event (pre-stress) and after the stress event (post-stress). This data can also be used to generate "response profiles" (both physiological and psychological) allowing comparisons of an individual's stress responses in a specific situation with data from other studies, as a way of estimating relative levels of stress.

Consenzo et al. (2006) report several efforts using this approach. For example, previous research has used the Multiple Affect checklist to explore the effects of two different nuclear-biological-chemical (NBC) protective systems on dismounted soldier task performance. This research showed that soldiers reported greater hostility levels when wearing the NBC equipment than their regular uniforms. Given this and similar kinds of results, these researchers argue that "these comparisons provide a method for quantitatively estimating the relative stress experienced in a given situation and for studying the links between stress responses and performance in a variety of settings" (p.

B101). Similarly, they also argue that the RAMS tool could be used to "quantify and predict" cognitive readiness.

The RAMS seems to offer a promising way to capture some elements of performance under stress. Many of the elements used to capture individual readiness are novel compared to other measurement efforts. For example, Consenzo et al. (2006) posit that individual differences (e.g., need for certainty) are possible correlates of readiness. An individual's physiological and psychological responses to stress are clearly relevant to issues of readiness. However, with the sheer number of measures used in this research, readiness seems to be conceptualized as any factor that might improve performance. With all of these different indicators, it may be very difficult to disentangle and to identify discrete changes in the system. Nonetheless, the pros and cons of this tool (and even its underlying assumptions) should be explored in more detail, because this effort does represent a unique way of capturing some elements of individual readiness.

Buddin (1998) argues that self-report measures of readiness have some inherent problems. Specifically, Buddin explored the impact of personnel support programs on individual readiness. In discussing typical self-report measures, he argues that "these measures show the member's evaluation of the unit's readiness or his or her individual readiness (i.e., availability for duty, ability to deploy, ability to perform), but this evaluation is not necessarily a consistent estimate of the unit's warfighting preparedness. Moreover, he also argues that "These individual evaluations have not been compared to more objective readiness rules that are conventionally used by the military" (p. 8). In short, subjective measures of readiness may or may not necessarily imply better objective performance.

As a whole, then, very few systematic efforts to capture individual readiness were available in the existing literature. Although the READI measure is very specific to a given domain, it does present a view of readiness that is somewhat consistent with previous models of readiness. The RAMS measure, on the other hand, seems to emphasize issues of stress management and coping in their measure of readiness. Future research will be necessary to develop and validate a measure that is relevant within the CF domain.

3.4 Military Readiness Research

Beyond the models and measure development, there has also been a good deal of research relevant to individual readiness and related constructs. For example, Castro, Bienvenu, Huffman and Adler (1999a) studied the well-being of soldiers who had been deployed in Kosovo. The soldiers' mission was to maintain a stable and safe environment, while trying to create peace and democracy. Castro et al. (1999a) assessed soldiers pre and during deployment on their attitudes towards the mission, readiness, leadership, their experiences, and physical and mental health.

U.S. soldiers who had been deployed in the U.S. sector of Kosovo for about 3 months took part in the study. These soldiers (n = 1,718) completed a survey assessing readiness-related attitudes toward the mission, and interviews were conducted with 15 leaders and soldiers. Data from a previous sample was also used. This data had been collected from 2,094 soldiers, approximately six weeks before notification of deployment to Kosovo, and again about 3 months into deployment. Although there were some slight differences among the two surveys, only questions common to both were analysed. Specific issues tapped are shown in Table 6.

Table 6. Survey sections and topics (Castro et al., 1999a)

Section	Topics	Sample Item
1	Military deployments	What is the ideal length of time in months that a deployment should last?
	Peacekeeping attitudes	I feel comfortable in the role of peacekeeper
2	Unit operational readiness	My company is ready for combat
	Leadership	My chain of command works well
3	Workload	Number of hours worked in the past week
	Deployment experiences	Saw dead or injured civilians
	Deployment stressors	Health problems of family member
4	Morale	Cohesion in your unit
	Well being	Lost much sleep over worry
	Depression	Felt sad in the past week
	Physical health	Head colds

Interviews allowed participants to discuss any important issue they wanted, but focused on the Kosovo mission, mission success, unit climate, leadership and the environment.

Results from the Castro et al. (1999a) showed soldiers' attitudes before and during deployment were significantly different. Specifically, before having been deployed, soldiers reported that deployments should last longer (5.4 months) than when deployed (5 months). Similarly, soldiers reported that the ideal number of deployments in a 3 year period was higher when asked before deployment than during deployment (2.1 vs. 1.6). In relation to peacekeeping attitudes, soldiers reported more negative views of peacekeeping when deployed than when not deployed. Deployed personnel also rated peacekeeper training to be less relevant to their mission than when not deployed, and rated peacekeeper guidelines to be more unclear when deployed. They also reported that they found it difficult to go from combatant to peacekeeper. Participants were also less optimistic when deployed, as they were more likely to believe that the former Yugoslavia would always have conflict, and were less optimistic that their mission in Kosovo would be successful.

Measures of operational readiness were also taken ("My company is ready for combat," "I am confident in my unit's mission-essential equipment", and "I think we are better trained than most units in the Army"). Castro et al. (1999a) found operational readiness to be higher when assessed during deployment than before deployment. Interviews revealed that many soldiers felt over-prepared for the mission in Kosovo. Although overall feelings towards leadership were positive, during the mission, leadership was rated to be less impressive. In addition, the chain of command was seen to be less functional during the mission than before the mission began.

Although soldiers reported working more during deployment, hours of sleep remained consistent. The interviews and survey data confirmed that soldiers had experienced a number of traumatic events that were positively related to depression levels. Soldiers' top concerns related to their redeployment date, boring work, concerns about mines and family issues. Overall soldier morale was excellent, with more than 70% of soldiers reporting their morale to be medium to very high. Interestingly, however, more than 75% also reported their level of burnout to be medium to very high.

Castro et al. (1999a) also found significant differences between pre deployment and mid-deployment attitudes. Most of the results show more negative attitudes during deployment but higher perceived levels of readiness. Soldiers felt more ready during the mission (even over-prepared) than before the mission. This is an interesting finding in many ways, as it seems to argue against readiness as being a somewhat consumable resource that gradually depletes over time. Rather, this seems to argue that readiness is a construct that grows in relation to the extent to which it is "exercised" or tested.

In an additional study exploring readiness, Castro and Adler (1999) conducted research looking at the effect of operational tempo (OPTEMPO) on readiness. They define OPTEMPO simply as "the rate of military actions or missions" (p. 1).

In the past, Castro and Adler (1999) argue, operational tempo was defined solely in terms of the number of deployments. However, they argue that the type of deployments (e.g., combat, peacekeeping or humanitarian) as well as range of other factors (e.g., quality of training and support) also impact on readiness. They, therefore, define OPTEMPO beyond the typical deployment-centric definition to include influences on the tempo of deployment, garrison duties, as well as training (see Figure 6).
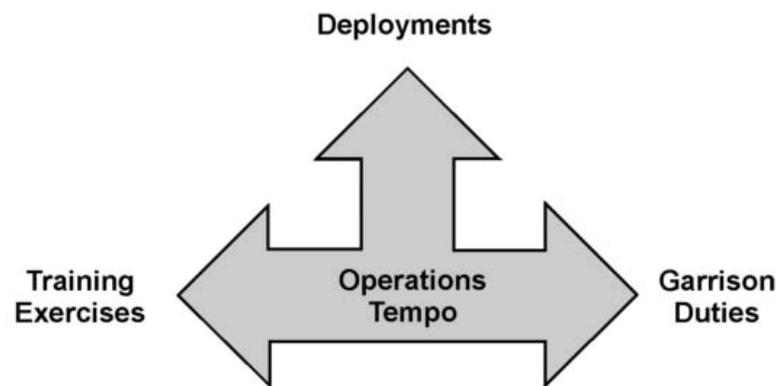
Figure 6. Environments relevant to readiness (Castro & Adler, 1999)

However, Castro and Adler (1999) argue that even garrison duty can be trying. In some situations, activity and workload levels within the garrison context can actually be greater than during military deployments. This can be exacerbated when there are fewer troops available, but the same pace is required within the garrison. Similarly, training exercises often happen away from family supports, and tend to intensify as units get closer to deployment. This suggests that deployment, time in garrison and training exercises all present unique challenges to readiness, and should all be considered.

In an exploration of the effects of OPTEMPO, more than 2200 soldiers serving in Europe from 1991 to 1999 were surveyed, and were asked about their years in service and the number of deployments during that time (Castro & Adler, 1999). Not surprisingly, results showed that personnel with more years of service, on average, had more deployments. More interestingly, however, was the finding that soldiers with fewer years of service showed higher levels of deployment tempo than more seasoned soldiers, as shown in Figure 7.
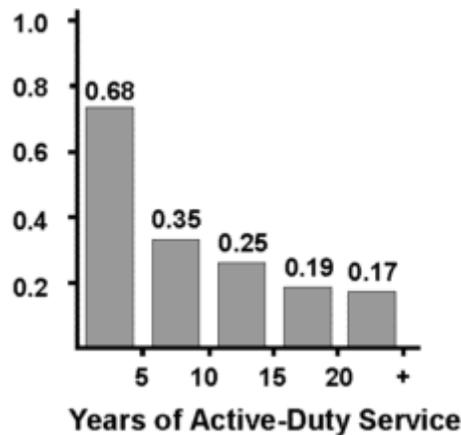
Figure 7. Deployment tempo (Castro & Adler, 1999)

This suggests that fewer years of active duty is likely to exert a higher "deployment load" (i.e., rate per year of service) than more years of active duty. This, of course, is likely consistent with experience of Canadian Forces personnel, especially as more recent operations have increasingly involved more challenging combat roles.

Castro and Adler (1999) also explored retention issues. For example, soldiers were asked about their re-enlistment intentions. Only 17% of soldiers indicated that they would make the military a career because there were too many deployments, and this trend was reported to be consistent across all ranks. About a third of all personnel interviews indicated that they would get out of the military after their service contract were completed. Despite this, more than half of the soldiers reported that deployment made their work more interesting, and that deployments highlighted the criticality of their jobs. However, these attitudes were dependent on whether soldiers wanted to make the military their career or not, with committed soldiers being more positive. Those intending to leave the military system were more likely to report that the number of deployments had adversely affected their marriage and caused a strain on their families than those intending to stay.

In a second part of this report, Castro and Adler (1999) explored the medical readiness of soldiers in a sample of more than 44,000 personnel serving in a NATO mission in former Yugoslavia. A psychological symptom test showed that longer deployments were associated with more physical symptoms, with high rates showing up after 5 months (see Figure 8).
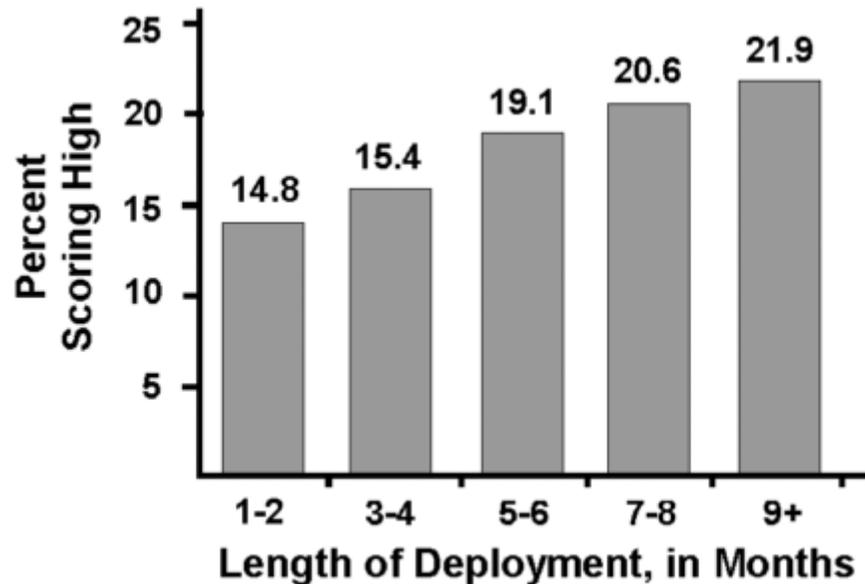
Figure 8. Psychological symptom test (Castro & Adler, 1999)

In this figure "percent scoring high" relates to the percentage of solders scoring high on tests of psychological symptoms. Other analyses showed that soldiers who scored high on the psychological symptoms screening test were more than twice as likely to report physical symptoms than those who scored low on the test. This finding illustrates the interrelatedness of the mind-body system, and the potential importance of psychological functioning on even physical readiness.

Other research conducted by Castro, Huffman, Dolan, Bienvenu and Adler (1999b) was used to explore the utility of the OPTEMPO readiness model. This was a longitudinal study which followed 10 U.S. Army companies in Europe over the course of 2 years. More than 650 soldiers filled out surveys, participated in interviews, and filled out unit outcome measures on a quarterly basis. For this research, measures were created to explore 5 focal areas, including military readiness, tempo measures, medical readiness, job attitudes and soldier and family issues. The various categories of measures are shown in Figure 9.

Categories of Measures

MILITARY READINESS

- Morale
- Soldier Pride
- Combat Readiness
- Operational Readiness
- Mission Readiness
- Unit Cohesion
- Leadership (Vertical Cohesion)
- General Leadership Quality
- ✓ Awards
- ✓ Promotions
- ✓ Driving Offenses
- ✓ Safety Performance
- ✓ Gunnery Scores
- ✓ Range Scores
- ✓ UCMJ
- ✓ AWOLS

TEMPO MEASURES

- ◆ Number of Deployments
- ◆ Days on Leave/Pass
- ◆ Days on TDY
- ◆ Work Hours
- ◆ Days in Field

MEDICAL READINESS

Wellness Behaviors
- Cigarettes
- Alcohol
- Caffeine
- Sleep
- Physical Exercise
- ✓ Urinalysis
- ✓ Accidents

Well-Being
- Well-Being
- Depression
- Physical Symptoms
- ✓ APFT Scores
- ✓ Profiles
- ✓ Sick Call Rates
- ✓ Suicides

JOB ATTITUDES

- Recognition
- Challenge
- Time Commitment
- Work Intensity
- Goal Acceptance
- Job Control
- Involvement/ Engagement
- Job Satisfaction
- Work Overload
- Task Significance

SOLDIER & FAMILY ISSUES

Career Issues
- Career Decision
- Promotional Opportunity
- Re-enlist Bonus
- ✓ Retention Statistics
- ✓ Indebtedness

Family Issues
- Work/Family Conflict
- Family/Work Conflict
- ✓ Family Abuse

NOTE: ✓ indicates unit objective measure.

Figure 9. Categories of measures for OPTEMPO readiness model
(Castro et al., 1999b)

These measures relate to a number of the typical factors notable in military readiness research (e.g., morale, cohesion), as well as job attitudes and career/family issues. Measures also included indicators of what the researchers called "medical readiness", as well as other measures of tempo.

The results of several specific analyses, all exploring the relationship between tempo measures and readiness indicators were reported. For example, one medical readiness indicator was the number of alcoholic drinks consumed in the past week. At the garrison level, the OPTEMPO indicator was the number of hours that soldiers reported working over the past week. Congruent with the predictions of the OPTEMPO readiness model, medical readiness was highest when workload was moderate, as shown in Figure 10.
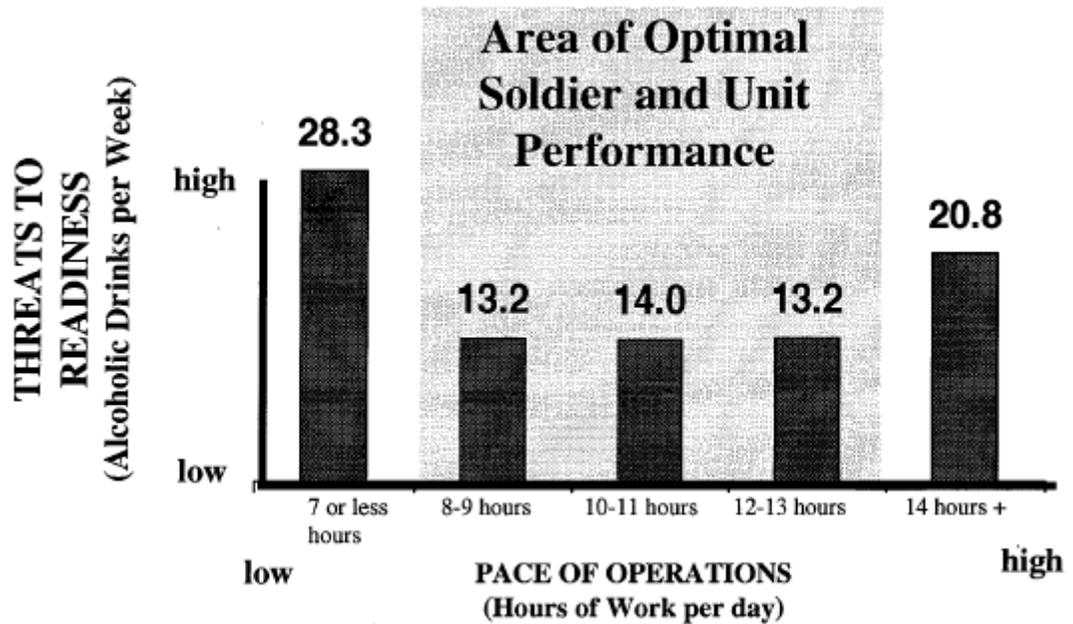
Figure 10. Alcohol consumption for junior enlisted soldiers (Castro et al., 1999b)

As can be seen in Figure 10, junior soldiers reported more drinking during periods of low and high workloads, but drank less during moderate workload periods.

At the family level, readiness was hindered when military personnel were required to perform at a high tempo while experiencing very high levels of work-family conflict, as shown in Figure 11.
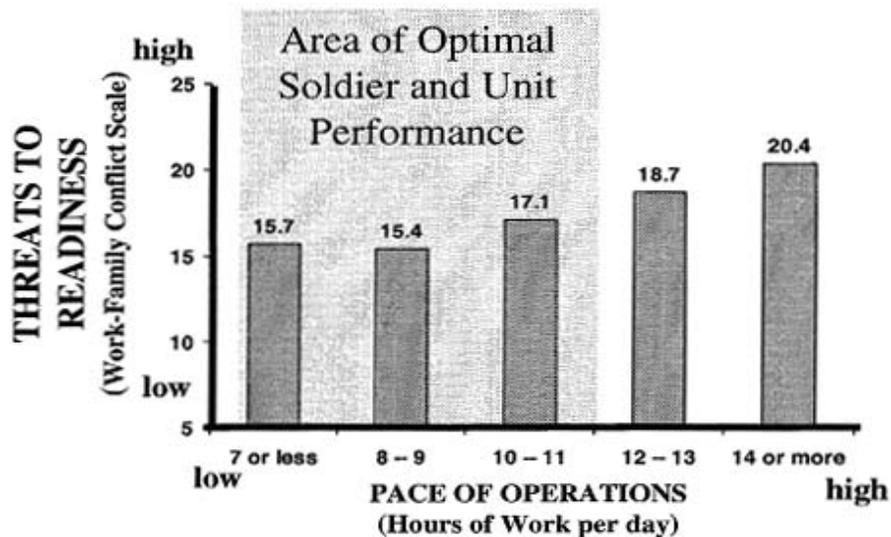
Figure 11. Readiness and family conflict (Castro et al., 1999b)

Specifically, when operational pace was low, work-family conflict was also reported to be lower, indicating higher levels of readiness. Findings from this Castro et al. (1999b) study, then, present a complex account of the many factors that impact on individual readiness.

A study by Griffith (2006) sought to understand the factors that had the most impact on soldier readiness (as defined from a physical and psychological perspective). As noted earlier, Griffith argued that the doctrinal approach to soldier readiness emphasized issues such as personnel and equipment on hand, equipment serviceability, and training to meet mission essential tasks. However, he argued that these dimensions may not exert the most influence on actual unit readiness. Understanding their perceptions and attitudes, he argued, would be a much better window to unit readiness. To this end, he surveyed 1,138 reserve soldiers from 31 company sized units on their individual and unit's readiness, behaviour within the unit and the quality of their unit's administration, training, leadership, combat skills and equipment. Three research questions were targeted:

- To what extent do unit data used in deriving doctrinal readiness ratings correlate with perceptions of combat readiness?

- How well do unit data used in deriving doctrinal readiness ratings differentiate units on readiness?

- To what extent is this differentiation improved when considering soldiers' perceptions about unit experiences related to readiness, such as the quality of training, unit leadership and soldier relationships?

Unit readiness was conceptualized as soldiers working cooperatively, being physically and mentally fit, technically competent, disciplined, showing commitment and having families that were prepared for the deployment. Archival and soldier survey data were examined. Archival data included percentage of personnel assigned to authorized positions, qualified in their specialties and weapons, who passed the Army Physical Fitness Readiness (APFT) test and medical exams, and who had completed the Family Care Plans.

Griffith (2006) used several survey items to capture unit readiness, and these items were used to derive two outcomes, namely re-enlistment intentions and unit combat readiness. Table 7 shows the scales that were used.

Table 7. Readiness survey items (Griffith, 2006)

Scale	Example Item
Unit's administration	How well did someone in your unit do the following: assign you a sponsor
Training quality	Overall, how satisfied are you with the following: training
Soldier teamwork	How much do you agree with the following: soldiers in my unit feel close to each other
Soldier caring	How much do you agree with the following: most of the soldiers in my unit can be trusted
Leader skills	How much do you agree with the following: the officers in this unit really do their job well
Leader caring	How much do you agree with the following: my officers are interested in my personal welfare
Career intentions	Right now, you plan to: stay in guard until retirement
Unit combat readiness	How much confidence do you have in: own preparation for wartime missions
Equipment combat readiness	How much confidence do you have in: your unit's major weapons systems
Leaders combat readiness	How much confidence do you have in: unit's preparation for wartime missions

Analyses addressed the 3 research questions outlined above. The first analysis explored the relationship between doctrinal indicators of readiness and perceptions of combat readiness, as indicated by soldiers' intentions to stay in the military and their perceptions of combat readiness. These analyses showed no relationship between doctrinal readiness ratings and perceptions relevant to combat readiness.

To explore the two remaining questions, units were grouped using a cluster analysis in order from the least combat ready to the most combat ready. In general, analyses showed that doctrinal indicators of readiness did not significantly predict combat readiness, and did not necessarily relate consistently to other indicators of readiness (training quality, soldier teamwork, soldier caring, leader skill and leader caring). However, the perceptions of soldiers did help to differentiate units of varying quality and were predictive of intentions to remain in military service, as well as being indicative of unit readiness, as shown in Figure 12.
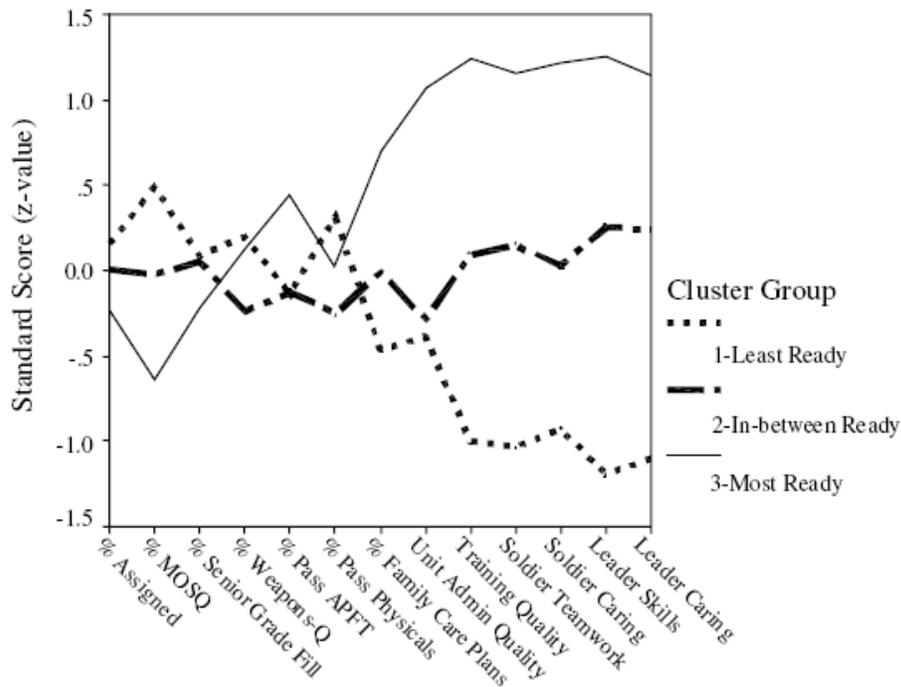
Figure 12. Comparisons of least ready to most ready units (Griffith, 2006)

As Figure 12 shows, differences among groups at varying levels of readiness emerged in relation to issues of training quality, soldier teamwork and caring and perceptions of leaders as being skilled and caring, with "most ready" group members showing higher ratings of all these dimensions.

It should be noted that Griffith (2006) acknowledges several critical limitations of this research, including that much of the data was self-report, that personnel readiness was the only doctrinal indicator of readiness, and that actual measures of mission or combat performance were not available. Despite these limitations, however, this research does illustrate the difference between doctrinal readiness and individual readiness. Griffith (2006) argues that unit readiness requires a deeper understanding of soldier perceptions about "the quality of unit administration, training, leadership, teamwork and cooperation with doctrinal personnel readiness" (p.382). Interestingly, he also argues that the unit readiness dimension can be captured by two constructs, namely, trust and the notion of a psychological contract. Trust impacts because:

> "members willingly involve themselves in the workgroup and its performance, to the extent that members trust immediate leaders and the larger organization to do the right thing. This is particularly true in military units, where discipline and the degree of physical risk often require soldiers to unhesitantly obey and concur with commands – commands that civilians would rightly want to question or to want to discuss" (Griffith, 2006, p. 382).

Trust has become especially important, Griffith argues, to reservists who have been increasingly tasked to perform in operations.

Similarly, Griffith (2006) argues that psychological contracts "…a set of mutual expectations about obligations between the organization and its members" (p. 382) are also a critical aspect of unit and soldier readiness. This contract is informal and voluntary, and each party assumes an implicit bargain has been made. Soldiers accept long periods away from their families, and assume a high

level of risk, in return for proper training and equipment, respectful treatment and having their needs and interests considered. This research, then, provides a good indication that doctrinal views of readiness within the U.S. military system are not likely to capture the nuances of unit and individual readiness.

Research conducted by Bolstad et al. (2006a) worked to predict the cognitive readiness of military health teams in the United States.[2] These medical teams are often deployed in geographically dispersed locations and are comprised of team members from diverse backgrounds and competencies. The goal of this research was to develop a methodology for predicting "Medical Cognitive Readiness" a tool they developed called the Medical Cognitive Readiness Survey Tool (M-CREST). This research relied on existing theory and on lessons learned in Afghanistan and Iraq, as well as interviews with a range of personnel (e.g., surgeons, nurses and medics).

The Bolstad et al. (2006a) model of team cognitive readiness is shown in Figure 13.
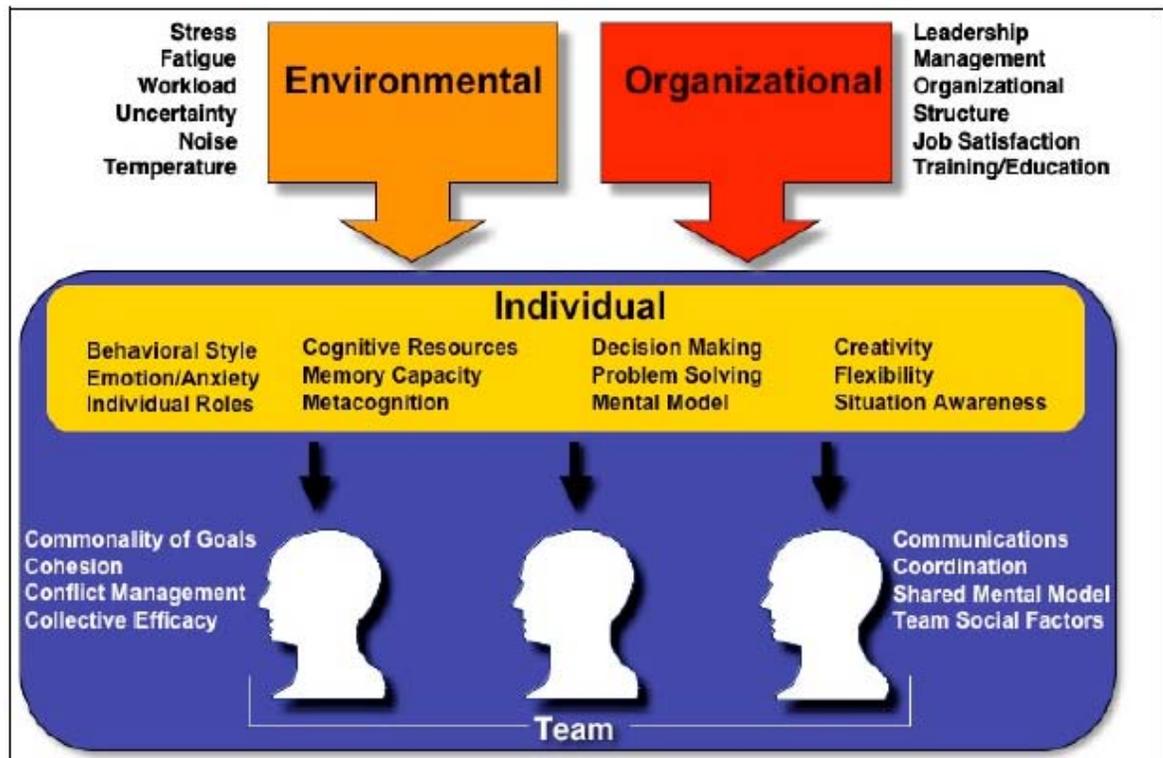
Figure 13. Model of team cognitive readiness (Bolstad et al., 2006a)

Bolstad et al. (2006a) posit 4 main sets of factors to influence readiness. These include team factors, organizational factors, environmental factors and individual factors. Despite identifying a range of factors, however, they also point out that their focus is "…more on the stable, enduring characteristics which are internal to military personnel, that is individual and team competencies (or KSAs) rather than organizational or environmental characteristics" (p. 3).

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[2] Unfortunately, the only available description of this research was a conference presentation, and many details were lacking.

With this initial model, Bolstad et al. (2006a) then worked to refine their model and to decide the specific factors to include in their model. They reviewed the literature and conducted interviews with military personnel, and arrived at factors believed to have the biggest role in promoting cognitive readiness, as shown in Figure 14.

	Attitudinal	Cognitive/Behavioral
Individual	Behavioral Style Global Response to Stress (Emotion/Anxiety) Self-Efficacy	Cognitive Resources Decision Making Flexibility (Adaptability) Individual Roles Memory Capacity Metacognition Problem Solving Situation Awareness
Team/Organizational	Cohesion Collective Efficacy Commonality of Goals Conflict Management Job Satisfaction	Communication Leadership Shared Mental Model Team Social Factors Training/Education

Figure 14. Team cognitive readiness dimensions (Bolstad et al., 2006a)

To validate these dimensions, Bolstad et al. (2006a) created the M-CREST, which is comprised of 24 different dimensions to assess the 21 KSAs in play. The researchers then sent structured questionnaires to medical personnel deployed in Afghanistan, and asked them to rate the importance of each of the dimensions.

All of these readiness dimensions were rated as being moderately important to very important. Although it was unclear from the description as to exactly how this would be achieved, the goal of the M-CREST was to "….identify cognitive readiness needs of the individual and provide prescriptions that are tailored for each recipient" (Bolstad, 2006a, p. 4), as well as a "global report to the supervisor on the team's predicted readiness."

This effort is certainly a compelling one because it considers readiness at the team level. Unfortunately, despite our best efforts, we were not able to access a full report about the research. In addition, a related article that was available (Bolstad, Babbitt, Semple, Vestewig & Russo, 2006b) added no new information.

3.5   Summary

As this chapter suggests, no single, agreed-on definition of individual readiness has emerged, although there is some commonality in the key elements of readiness. For example, many definitions underscore the cognitive capacity to problem solve, focus on tasks despite increased emotion and complexity, as well as have technical competence to fulfill performance requirements. At a more conceptual level, however, there are differences among theorists and researchers. For example, some approach readiness purely from the individual perspective, at the expense of including only cognitive dimensions (Bolstad et al., 2006a; Morrison & Fletcher, 2002; McDonald, 1999). On the other hand, others approach readiness from a more holistic perspective, including social factors (Reineck, 1999; McGonigle et al., 2005). Despite their differences, theorists and researchers within this domain tend to agree that individual readiness represents some form of preparedness to complete a task or fulfill a role in a particular operational context, which is influenced by a number of contextual factors (e.g., institutional programs). .

Moreover, this chapter shows that there is some research attention on individual readiness within the military domain. However, the literature can be characterized as still being at a relatively early stage of development. This is evidenced both by the quality of the existing research (which is variable) and, more significantly, by the lack of adequate measures and support for existing models of individual readiness. The measures that do exist are generally tailored to a specific domain and their generalizability is unclear. The models related to individual readiness are perhaps more developed than measures, but are still relatively few and often lack empirical support. Those presented in this chapter do not appear to have been broadly validated. One prominent model by McGonigle et al. (2005) presents a good account of some readiness factors, but its usefulness is constrained by its focus on personnel support programs.

As a whole, the concept of individual readiness is acknowledged to be an important one in the available literature. However, to date, there is no one established definition, making research efforts fragmented. Although often addressing a number of similar characteristics, there is no shared categorization scheme regarding the elements of individual readiness. The challenge for this review, therefore, is to establish a suitable model that will be used to guide a comprehensive research program furthering our understanding of CF military individual readiness.

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4. Antecedents of Individual Readiness

As noted earlier, we believe that individual readiness should be understood as an individual level construct, but one which is affected by many different layers, including family and organizational influences, as well as the influence of one's military unit. More specific influences relevant within a military domain are skill training and personnel support programs. Understanding the impacts of these different systems on readiness will shed more light on the attitudes, beliefs and motivation of the individual at a high level of readiness. The following sections, therefore, describe the factors that influence readiness at varying levels, starting with those at the organizational and unit level.[3]

4.1   Canadian Forces as an Organization

The Canadian Forces as an organization has a profound role to play in the promotion of individual readiness. This is true in terms of both formal practices and policies, as well as in relation to the general climate and culture of the organization. The general working environment helps to frame workers' perceptions of the organization as a whole. For example, positive working conditions, which include up-to-date equipment, policy measures to guarantee safety, etc., implicitly signal care and concern for the safety and well-being of employees, and can work to reduce feelings of uncertainty and ambiguity. All of these actions, of course, are likely to promote both higher levels of individual readiness in the organization.

This line of thought is expressed in a model by Booth, Segal and Bell (2007) created to understand the U.S. Army context. These researchers examine the relationship between Army policies, programs and practices (PPP) and key organizational outcomes (see Figure 15).
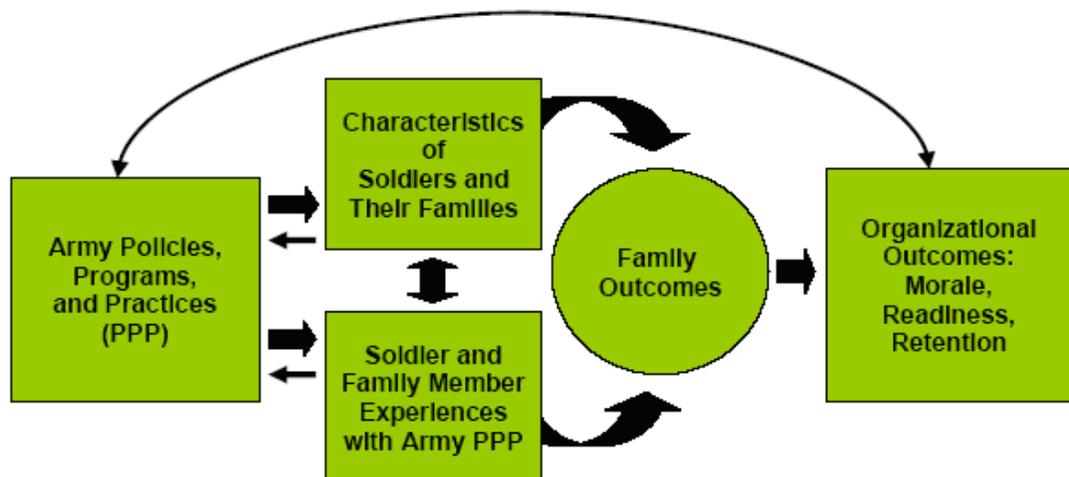
Figure 15: Effects of U.S Army policies, programs and practices (PPP) on organizational outcomes (Booth et al., 2007, p. 6)

In short, this model argues that the U.S. Army policies, procedures and practices influence organizational outcomes such as morale, readiness and retention directly. They also impact on

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[3] In Chapter 5, these higher level influences will join to promote critical elements of readiness at the individual level.

organizational outcomes indirectly, in concert with characteristics of soldiers and their families, and with their actual experiences with the programs, policies and procedures, both through family outcomes. A range of personal characteristics are argued to be relevant including demographic and social (e.g., age, rank, ethnicity, parental status) factors. Family outcomes include soldier and family well-being, life and job satisfaction, adaptation to Army challenges (e.g., separation, relocation) and all forms of health (e.g., physical, emotional, spiritual). Importantly, the characteristics of soldiers and their families and their experiences also influence the PPPs in turn as well. The directional arrows in the model show that the Army context and its PPPs both shape and are shaped by individuals and families who are affected by them. Although it is derived from the U.S. Army domain, this model provides a good overview of the same constructs that are in play within the Canadian Forces context. The policies, programs and practices of the CF are also likely to interact with individual and family experiences to shape both family and organizational outcomes such as readiness, morale, and retention.

In a general sense, it seems logical to argue that many of the factors that promote excellence within an organization are also likely to promote higher levels of individual readiness. This issue is discussed more in the section that follows. To begin, we explore the impact of CF polices and practices on individual readiness, followed by a discussion regarding the role of regimental system and leadership as broad antecedents to readiness.

4.1.1 CF Policies and Practices

The behaviour of an organization toward its members is reflected in multiple complex indicators. The organization's policies and the rules that govern their interactions with CF personnel are all intended to provide structure and order to both promote the goals of the organization as well as to ensure continued engagement and personnel involvement in achieving organizational goals. To the extent that these policies and procedures are influences on the attitudes, skills and motivation of personnel, they are also likely to represent at the very least indirect influences on an individual's readiness. A range of research exploring the climate and culture of the CF has highlighted the potential impact of organizational policies and practices on issues, such as commitment, retention, job satisfaction and readiness.

For example, in a study conducted with senior CF commanders who had made difficult ethical decisions in the course of complex operations (Thomson, Adams & Sartori, 2005), several commanders noted the important role of the organizational practices of the forces impacting on their perceptions of their jobs. In some cases, participants articulated dilemmas that arose from a perceived lack of congruence between what they believed were the espoused values of the CF and actual organizational behaviour. For example, one commander thought that the loyalty and responsibility of the CF as an organization for its members, documented in *Duty with Honour* (Department of National Defence, 2003), remained unfulfilled. He explained:

> *"I got tired of what we say we are doing versus what real behaviour goes on…statements how people are our most important asset and what I see around me says that is not the case whatsoever… the married quarters that we have for our soldiers… in (CANADIAN CITY)…are decrepit…but we expect our soldiers to live in with their families…when our soldiers return from missions in terms of them follow up to what we can do versus what we are actually doing. What we are…band-aid activities versus real sustainable concerned care…if we don't go into operations, then there's no sense wearing the uniform, which right now about…30% of our people…can't deploy for operations – not physically, not mentally, not emotionally ready to go that trend is going up…so what you see is the*

continual great ideas, change agenda, things like that, will transform, are words but all of it falls back down onto our soldiers...So after XX years you get tired of that, it gets worse as we get higher."

For him, a career soldier, the organizational culture was not fulfilling its obligation to its members. He could no longer live with the inconsistency between the espoused values and what Pedersen and Sorensen (1989; cited in English, 2004) refer to as "values-in-use". In effect, he made a difficult ethical decision and chose to remain consistent with his own personal values, discontinuing his service to the CF. This account provides a good anecdotal example of how an organization shapes the thinking and motivation of its members. More importantly, this example and other examples from the same study (see further descriptions in Thomson et al., 2005) demonstrate the consequences of a lack of perceived organizational support for its members. If measures of individual readiness include commitment and retention, as some do, then it is important that an organization, through its policies and practices, demonstrate a commitment to its members.

Other research, conducted for the CF concerning organizational issues, also illustrate the general climate of the forces. For example, Royal Military College's Army Climate and Culture survey, exploring the core values of soldiers in relation to Canadian society, showed that "soldiers perceive that they lack adequate voice in daily decisions that affect them (i.e., they experience more transactional than transformational leadership) and in the broader relationship with the CF and the government" (Bradley, Charbonneau, Johnston & Campbell, 2004, p. 38). Similarly, other research conducted by McCreary, Febbraro, Bradley, Charbonneau and Villeneuve (2006) also speaks to the potential disenchantment of high ranking Land Force CF personnel (at the Lieutenant Colonel level) as a possible contributor to lowered readiness. This study followed up the Army Culture and Climate Survey, which suggested that CF personnel at the LCol levels were dissatisfied. Using both questionnaires and focus groups, this research showed that although LCols seemed to be engaged and somewhat satisfied, they also had a number of concerns, including promotion, leadership, and a range of organizational issues (e.g., high levels of bureaucracy, feeling micromanaged). Although there was little direct evidence that these organizational issues had impacted on readiness and performance per say, it does suggest the potential for long-term implications if these areas of dissatisfaction are left unaddressed. Perceived organizational support can arise then from members' perceptions of CF policies and practices.

Recently published research (Okros, Hill & Pinch, 2008) explored the attitudes and beliefs of senior CF personnel taking commander level courses at Canadian Forces College from 2001 to 2003. Survey data was collected as part of a larger Canadian/U.S. study, and happened to be after the events of 9/11, but before the CF transformation efforts that began in 2004. Although survey items related to a number of domains, the primary focus was to understand the beliefs and attitudes of senior CF personnel in relation to the CF as an institution, and some of these questions directly pertained to readiness, such as morale. When asked to rate the morale of their units, senior personnel responded that it was high. However, about half of the participants were only somewhat confident in the CF ability to perform well in wartime. Despite their pride in CF members, only a few senior personnel strongly agreed with the assertion that the CF "attracted high quality, motivated individuals."

The results of the 2007 "Your Say" attitudinal survey (bi-annual survey administered by Director Military Personnel Operational Research and Analysis – DMPORA) hint at some areas likely to impact on individual readiness (Urban, 2007) when considering the relationship between elements like work-life balance, job satisfaction, perceptions of the organization and readiness. Using a 2-stage stratified random sampling technique, this survey addressed six core topic areas, including

military career, career management and postings, work-life balance, CF as a whole, direct leadership and life satisfaction. In terms of military career items, CF personnel rated themselves to be most satisfied with the military way of life, service in the CF, and working relationships. However, they were most dissatisfied with the promotion system, career management, and career progression. Most CF personnel rated themselves as having control over their CF career, as being happy with their postings, but wanted more geographical stability. With respect to the CF in general, personnel agreed that the CF would look after their needs if they were injured. However, most CF personnel also agreed that the CF lacks the equipment it needs to perform well in operations and that there is no long term planning in the military.

Specific CF polices and procedures designed to promote and maintain individual readiness are also important to understand in more detail. A review by Sharpe and English (2006) explored the issue of personal operational readiness, and explored a number of the relevant policies and procedures in place. They hold that although there are a range of relevant policies and procedures, the key is not what an organization has "on paper", but how these are implemented. Through anecdotal evidence, Sharpe and English's research pointed to the inconsistencies with respect to the treatment of CF personnel and its negative impact on individual readiness within the forces. Specifically augmentees were thought to be the most at danger of being "on their own" when preparing for an upcoming deployment. In contrast, CF personnel from coherent Regular Force units are reported to get more support with predeployment issues.

Another problematic issue identified by Sharpe and English is that the relationship between formal policy, procedures, programs and actual individual readiness is unknown. They note "the policies lack any type of performance measure or monitoring mechanism, making it largely impossible to assess how well they are being implemented and how effective they are from the individual's perspective" (2006, p. 32). Even if these policies and procedures are implemented, the extent to which they actually promote higher levels of individual readiness is unclear.

Together, the efforts outlined above illustrate several areas in which CF personnel seem to have very positive beliefs and attitudes toward the CF as an organization as well as several areas that might be problematic and could adversely affect individual readiness. Of course, it would be impossible to understand all of the relevant CF organizational policies and procedures, but this research hints at some of both the strengths and challenges of the CF as an institution, which may impact individual readiness.

4.1.2 Regimental System

Although unit cohesion may be most relevant to individual readiness at the small unit (e.g., a section in the case of an Army infantry unit), military personnel are simultaneous members of several different units. Regimental cohesion is likely to be another influence on individual readiness. Indeed, the regimental system is highlighted in Canada's Army (1998, p. 39-40):

> "The regimental system is of critical importance to the army, as it is within the regiment or branch that the military ethos is most visibly embodied and practiced. Its utility and value further lies in the strong sense of comradeship it fosters among members of a regiment and in its tribal/familial nature which bonds soldiers in devotion, loyalty and selflessness to each other, contributing powerfully to unit cohesion."

Regimental traditions work to promote common identity or identification with the regiment among its members, thereby resulting in greater commitment and cohesion. It is a military unit, having a rich culture built on history and tradition that is distinct from other regiments (DND, 2003). Army

regiments keep separate garrisons and wear individualized badge insignia, and are distinguished by battle honours, mottos, march songs, nicknames, and regimental allies, all of which are a source of group pride and loyalty to members of the regiment. For example, in the Regular force infantry, the Royal Canadian Regiment's (RCR) motto is 'Pro Patria' (For Country) and their nickname is 'Royal Canadians', whereas the Royal 22nd Regiment's motto is '*Je me souviens*' (I Remember) and their nickname is 'Van Doos' (Vingt Deux). As work by Winslow (1998) suggests, the cultivation of a common group identity underlies many military traditions and practices.

These regimental backgrounds follow CF personnel throughout their careers. The Reserve force or Militia has a similar regimental structure, with equally strong traditions and legacies. The power of the regiment within the CF is reflected in the following:

> *"In the British and Canadian armies, 'the regiment' is an extended family that reaches backward in time and outwards in space to encompass those soldiers who have come to identify with its collective memories and traditions. Each regiment develops a culture that is partly rooted in the place from which it draws its members and partly in a set of values and mores that have been created for the sole purpose of making it different from other regiments...For the most part, their [the soldiers] life and loyalty centre on the regiment – not on the army."* (Bercusson; as cited in Capstick, 2003)

This quote suggests that regimental background may provide a strong basis for shared identity. For example, members of the CF are hopefully united by the fact that they share a common commitment to the profession of arms (DND, 2003).

Moreover, research also underscores the importance of the regimental system to a soldier's thoughts and behaviour. Previous research exploring ethical decision-making within the CF showed regimental identity and culture helped guide ethical conduct (Thomson, Adams and Sartori, 2005). As well, there is good evidence that regimental identity enhances some team processes. Research by Adams, Waldherr, Sartori and Thomson (2007), for example, showed that shared regimental identity can promote higher levels of trust in distributed teams. Specifically, adhoc distributed team members who believed their other team members to be from the same regiment showed significantly higher levels of trust than when they believed their team member to be from a different regiment.

Largely unexplored at this point, it is highly probable that belonging to a regimental system is going to enhance a number of dimensions relevant to readiness, such as unit cohesion, organizational citizenship behaviour, commitment, primarily because this system provides a larger source of meaning and understanding of one's role and incorporation into a larger group. When individuals face stressful times, they can come to understand these times relative to the experiences of other regimental members (e.g., past heroes of the regiment). This suggests that the promulgation of regimental identity may be one way in which to promote the individual readiness of CF personnel. Indeed, research examining mental readiness in police reveals a similar family culture. For example, "Police family" activities (or supports) noted as important for fostering readiness included informal gatherings among officers (e.g., "wings and beer" nights) as well as informal positive feedback or recognition (e.g., "atta boy") (McDonald, 2007). More research will need to be conducted to understand the actual impact of regimental identity on soldiers' individual readiness components, as extensive research on this topic is currently unavailable.

4.1.3 Leadership

Leaders of a team have a variety of functions and can ultimately make or break a team. Leaders can be either assigned or emergent. Assigned leaders are formally given the role of leader whereas emergent leaders have informal influence over the team due to their knowledge or skills (Essens et al., 2005). Whether a team leader is assigned or emergent, however, a leader's role is to shape team members' understanding of the task (McCann & Pigeau, 2000; cited in Essens et al., 2005), direct and influence member behaviour (Marks, Zaccoro, & Mathieu, 2000; cited in Essens et al., 2005), and mediate information flow within the larger organization (Essens et al., 2005).

Many different types of leaders have been proposed in the literature, but a common distinction in the literature relates to transformational and transactional leadership. Transactional leadership is based on a simple exchange between leaders and followers. In short, effort expended is expected to relate to rewards given. Transformational leaders, on the other hand, go beyond the exchange relationship and have been suggested to exhibit charisma, inspirational motivation, intellectual stimulation, and individualized consideration. Excellent leaders provide meaning and challenge to their subordinates' work, expanding followers' use of their potential skills and abilities and being attentive to their subordinates' needs for achievement and growth (Lim & Ployhart, 2004). Transactional leaders focus on the short term goals, whereas transformational leaders look at the long term goals and emphasize their vision (Lim & Ployhart, 2004).

There is some agreement in the literature that good leadership is also likely to contribute to individual readiness. Griffith (2006, p. 370), for example, argues that the perceived confidence and competency of leaders is one of the most influential factors in motivating and sustaining soldiers in combat. Morrison and Fletcher (2002) also argue that leadership is a key influence on readiness. Past literature identifies a number of leader motives that impact on readiness, including a positive attitude, competition, assertiveness, power, achievement, and affiliation (Miner, 1985, McClelland, 1985; as cited in Morrison & Fletcher, 2002). There is also some strong evidence suggesting the skills and attributes that leaders emphasize can have key impacts on their followers' readiness.

For example, research by Bartone (1994) studied the effects of leader's beliefs and values on the psychological readiness of lower ranking personnel. Commanders from company sized units were asked to list and prioritize the most important factors relating to the unit success in combat. These responses were grouped into five categories: combat skills, discipline, decisive leadership, soldier morale, and centralized control. Commanders' responses were assessed to determine if they put a greater value on soldier morale (sense of purpose, mental readiness) or on combat skills (marksmanship, small unit movements, and land navigation). As well, responses were correlated with data from a separate survey which investigated soldiers' psychological readiness across the same army units. Soldier readiness indicators included commitment to the company, vertical cohesion, general sense of well-being, confidence in self, leaders and weapons, and life/work satisfaction.

Results (shown in Table 8) showed a consistently strong positive relationship between commanders giving higher priority (and presumably attention) to the morale of their soldiers and positive readiness indicators on the part of soldiers. Soldier morale was significantly positively correlated with readiness variables including company commitment, vertical cohesion, general well-being, confidence in self/weapons, confidence in leaders, and life and work satisfaction.

Table 8. Correlations of commander priorities and soldier readiness indicators (Bartone, 1994, p. 1)

Soldier Readiness	Company Commander Priority	
	Soldier Morale	Combat Skills
Company Commitment	.27*	-.29*
Vertical Cohesion	.32**	-.20
Horizontal Cohesion	.20	-.13
Confidence in Leaders	.26*	-.30*
General Well-Being	.28*	-.28*
Physical/Mental Health	.19	-.12
Confidence in Self/Weapons	.30*	-.13
Work Satisfaction	.31*	-.31
Life Satisfaction	.32*	-.35**

*Correlation significant at the .05 level of probability
**Correlation significant at the .01 level of probability

On the other hand, commanders who prioritized soldier combat skills over morale showed lower levels of soldier readiness, evidenced by lower company commitment, confidence in leaders, general well being, and life satisfaction. It appears then that "when commanders over-emphasize combat skills to the detriment of soldier morale issues, soldier psychological readiness is likely to degrade" (Bartone, 1994, p. 3).

Bartone's study asks important questions about the potential role of commanders in promoting individual readiness. However, it is important to point out that the description of the analytic approach casts some doubt on the credibility of these findings. For example, although the author notes that commanders mentioned 5 different categories they believed to be most relevant to unit success, only 2 of these categories were actually used in the analysis (i.e., correlating these priorities with those of soldier readiness indicators). It is unclear why analyses relevant to the other categories were not reported. Secondly, the author also notes that "a forced-ranking scheme was used in scoring commanders' priorities; to score higher on one category, a commander had to score lower on others" (Bartone, 1994, p. 2). The relation between the forced-ranking scheme and the commander score used in the correlational analyses remains undefined. And as such, it is unclear whether the conclusions of this research may have been influenced by a questionable analytic strategy. Still, this study provides an important perspective on the role of leaders in influencing their followers' readiness.

Similarly, the results of the 2007 "Your Say" survey hint at some leadership areas likely to impact on individual readiness (Urban, 2007). The Direct Leadership topic had 41 items, 34 of which were assessed through the mission success scale (roles and responsibilities), the internal integration scale and the member well-being and commitment scale. Regarding the Mission Success scale, CF personnel were generally favourable toward their supervisor. They agreed that their supervisor demonstrated competence, ensured people have what they need, and learned from their mistakes. There were significant differences among rank categories with officers having more favourable assessments than non-commissioned members (NCMs). With respect to the internal integration scale, most CF personnel were favourable towards their supervisor. They agreed that their

supervisor adhered to policies and procedures of the organization, kept them informed about matters affecting them, and maintained order and discipline. On a scale exploring member well-being and commitment, participants indicated that they felt treated with dignity (81.7%), respected as people, and treated fairly. Though these findings are positive, almost a quarter of participants in this study thought that their supervisor did not help adequately with their learning needs. Overall, the results of this study indicate a somewhat optimistic view of the status of leadership within the Canadian Forces. It should, therefore, be determined if these results are representative of all CF members, and if such positive attitudes and beliefs toward leaders positively influence individual readiness.

Other research seems to suggest leadership may impact individual readiness. Indeed, there is a wide range of literature exploring the relationship between excellent leaders and effective performance at both the individual and organizational level. For example, in a study of U.S. light infantry rifle platoon leaders, Bass and colleagues (Bass, Avolio, Jung, & Berson, 2003) examined the extent to which transactional and transformational leadership predicted performance. Results indicated that both transformational and transactional leadership had positive and direct effects on platoon performance (Bass et al., 2003). The finding that both transactional and transformational leadership predicted unit performance is in contrast with previous research, which has tended to favour transformational leaders. Research showed that transformational leadership was related to team performance through its effect on team cohesion, whereas transactional leadership was not (Bass et al., 2003).

Moreover, Lim and Ployhart (2004) investigated transformational leadership in both a maximum and typical performance context. A maximum performance context includes conditions of short time span, awareness of being evaluated, and acceptance of instructions to exert maximum effort (e.g., small unit combat teams), whereas a typical performance context includes conditions of overall performance over a longer time span (Lim & Ployhart, 2004). Although transformational leadership was found to be predictive of team performance in both performance contexts, it was more predictive in the maximum performance context. As such, it was speculated that certain team processes such as cohesion, trust and commitment matter most in maximum performance conditions (Lim & Ployhart, 2004).

There is, therefore, some evidence of the importance of leadership in promoting team performance, but inconsistent results about the actual type of leadership that is likely to be most effective, and only sparse links between leadership and readiness. The research described above does not specifically address the relationship between leadership and individual readiness, though it does include readiness components, such as unit cohesion. Future research should empirically establish this relationship and then determine which particular aspects of readiness (e.g., technical competence, commitment, organizational citizenship behaviour, etc.) are impacted most.

4.2   Skill Training

Another antecedent to individual readiness is skill training. One way in which skill development occurs is through the CF Managed Readiness System, (MRS) cycle. Within the CF, this cycle represents a key aspect of the skill training that military personnel receive prior to deployment in some theatres. Introduced in 2006, it is designed to help plan and prepare the Army for its operational commitments (McIlroy, 2006) by organizing the many different CF activities for force development, force management, and training (Pentney, 2007). It provides guidelines to task and prioritize the work of the CF's "12 Task Forces (TF), three Canadian Mechanized Brigade Groups (CMBG), Headquarters (HQ) (and their affiliated Signals Squadron), and the Army Reserve…"

(Pentney, 2007, p. 25). It is intended to help sustain "high readiness operations and achieve the right level of readiness under a "One Army" concept" (Pentney, 2007, p. 25). It is based on a 3-year tiered readiness cycle with three phases, ranging from the Support Phase, the High Readiness Training phase, and the High Readiness Training/Operations phase. The intent of this system is to ensure that personnel about to be deployed are at the appropriate level of combat readiness while preserving resources by allowing readiness to cycle in line with deployments. When in a high readiness phase, the desire is that one CMBG HQ (and Sigs Squadron) and two Task Forces would be in the High Readiness Training/Operations Phase at any given time, with a third TF as a reserve.

However, as more than one CF expert has argued, some of the assumptions of the MRS seem to be at odds with the actual structure of the CF (e.g., Pentney, 2007; McIlroy, 2006). For example, the fact that it is predicated on fixed 3 year time scale divided into 6 month blocks does not necessarily match the time frames dictated by operations. The MRS is also based on a Task Force model, requiring the regrouping of the necessary resources to make a coherent whole, currently compromised of 3 infantry companies, a surveillance squadron, an artillery battery and a squadron of engineers. The problem is that the neat assumption that the 12 existing manoeuvre unit HQs should be simply tapped to generate 12 Task Forces is not the current reality. In fact, there are insufficient forces at these headquarters to make up 12 different Task Forces. Lieutenant-Colonel (Retd) Dave Pentney, previous CO of 2 Airborne Commando and 1 PPCLI and Exercise Controller with the Directorate of Land Synthetic Environments (DLSE), provides an example to illustrate the problem with this approach. He explains that there are currently 27 infantry companies, comprised of 9 light infantry and 18 LAV companies. If 3 infantry companies are required for each TF, the problem is clear – there is no way to put 3 companies in each of 12 TFs. What ends up happening, then, is that TFs are constructed without the natural and logical infantry companies being included in them, simply because of the defined cycling requirements for the infantry units to be tasked when at a high state of readiness. The result, Pentney argues has been a negative effect on unit cohesion, which is the most important requirement of a combat force (Canada's Army).

Manning levels are also problematic, argues Pentney (2007, p. 28), in the sense that there are simply not enough personnel to create "formed sub-units" during the Support Phase, which are "built from the ground up through a relatively long collective training process." Again, the result is that units are understaffed. Units are required to get personnel from other units in order to be fully manned when they enter the collective training cycle. This can result in two companies from the same battalion being wholly out of sync during their high readiness training and deployment phases, and, moreover, "they will be without the leadership of their Commanding Officer (CO) and unit headquarters while they move through the four segments of the MRS support phase when critical transformation, regeneration and expansion objectives are to be achieved" (Pentney, 2007, p. 28).

This state of affairs, Pentney argues, undermines the potential positive contribution of leadership, as well as diminishing the cohesive power of the regimental system. This has impacts not just on the immediate plan, but he warns that this lack of cohesion might even impact on the long-term effects of personnel deprived of the important social supports needed in difficult circumstances. Thinking historically, he recalls one important lesson "from operations in the Balkans in the 1990s was the importance of shared experience and peer support in mitigating the effects of post traumatic stress disorder (PTSD). Time will tell whether the deliberate break-up of a TF following an operation will generate a higher incidence of PTSD" (2007, p. 29). To remedy these issues as well as to make the MRS more effective, Pentney proposed an adapted MRS cycle with 9 TFs rather than 12, no longer on a fixed cycle, but on one that is responsive to current demands. This adaptation would allow battle groups to be comprised of formed units rather than adhoc units,

ultimately maintaining the vital cohesion and a sense of common identity found in the regimental system.

As its name implies, the MRS is intended to ensure that readiness phases are controlled in order to have troops at the necessary level of readiness at the right time while conserving critical resources. MRS provides soldiers with the appropriate combat skills for operations. However, skill training also occurs at the unit level, which promotes skills and collective efficacy in the unit. The next two sections explore these and their relationship to individual readiness.

4.2.1   Unit Skill

Skill building involves developing or enhancing the knowledge, skills, and abilities (KSAs) to perform tasks that are both directly and indirectly relevant to one's job (Caliber Associates, 2003). Within the military context, skills are trained within both formal and informal systems. The formal individual and collective training that CF personnel acquire is critical to development. Like MRS, this formal training occurs on a cycle. In general, a military career progresses from training on individual skills and tasks to team (or small collective) tasks to larger collective tasks (Adams, Webb, Angel & Bryant, 2003). Recruit training in basic individual military skills and some basic special to arm skills will be followed by unit training as part of a team such as a vehicle crew or reconnaissance section. Generally speaking, collective training starts within a single purpose organization (such as an infantry company or armoured squadron). Once these phases of the training cycle are completed members move to multi-purpose group training. These groups can be a combat team, comprising artillery, infantry, armour, engineers, and logistic units. A similar, progressive, approach to training characterizes training in other service organizations, and joint service training.

Annual unit training cycles also follow a progressive pattern, often starting after an annual period of postings and vacations (often in the summer) and specialist or trade training away from the unit. The annual cycle commonly begins with individual skills and progresses through team or sub-unit training up to formation training. Mission training may require up to six months of focussed training prior to deployment. A between year rotational cycle may also be established with one year on a mission or as part of a rapid deployment force, one year reconstituting after a mission, and one year spent in collective training and mission preparation. This general approach is illustrated in Figure 16.
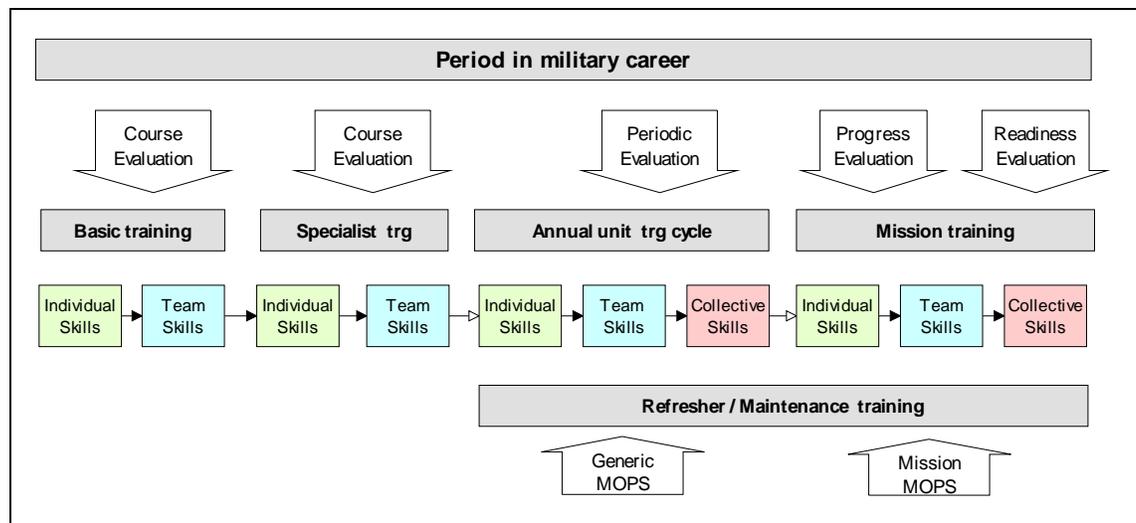
Figure 16. General military training framework

Clearly, individual and collective training tends to be cyclical throughout one's military career. It is important to note that beyond the obvious skill development, one of the key functions of training is the creation of cohesion and a sense of unity.

As noted earlier, research by Castro et al. (1999b) provides indication of a link between training and readiness. Specifically, soldiers who had received training in the previous 6 months rated themselves to have higher combat and operational readiness than soldiers without recent training. Understanding the psychological phenomena (e.g., confidence, self-efficacy) associated with individual readiness, however, should be explored further.

Although there are a number of training initiatives intended to help CF units develop the technical skills they need to acquire and maintain optimal levels of readiness, there appears to be little or no systematic research exploring the relationship between unit training and individual readiness.

4.2.2 Collective Efficacy

One of the natural outcomes of military skill training is that personnel develop collective confidence in their ability to perform the tasks that they will be required to perform. Collective efficacy has been defined as a group's perceived ability to perform a task (Marks, 1999; as cited in McGonigle et al., 2005). Team efficacy refers to "perceptions of task-specific team capability" (Gibson, 1996; cited in Gully, Incalcaterra, Joshi, & Beaubien, 2002, p. 819) and "a sense of collective competence shared among individuals when allocating, coordinating, and integrating their resources in a successful, concerted response to specific situational demands" (Zaccaro et al., 1996, p. 309; cited in Karrasch, 2003, p. 2). The construct of collective efficacy, thus, invokes a team-level application of Bandura's (1986; cited in Karrasch, 2003) self-efficacy, consisting of beliefs about personal competency and the likelihood of success.

Previous research has linked efficacy and other constructs directly relevant to readiness. Specifically, collective efficacy is said to be positively related to group cohesion (Paskevich, Brawley, Dorsh & Widmeyer, 1999; as cited in McGonigle et al., 2005), and strong team coordination (Kozub & McDonnell, 2000; Marks, 1999; as cited in McGonigle et al., 2005). In

fact, one of the key benefits of collective training is argued to be cohesion and the confidence that comes from having worked as a unit. For example, military personnel have argued that "collective training is where you acquire the unit cohesion that helps you get capable." (Reineck, 1999, p. 254).

There is some evidence that collective or team efficacy can improve team performance, but this evidence is somewhat inconsistent. For example, in a study with platoons engaging in basic training exercises and other duties (e.g., vehicle maintenance, etc.), collective efficacy was shown to promote cohesion, but did not relate to enhanced performance as rated by SME observers (Bass et al., 2003). However, research has also shown that team efficacy is positively related to team performance in a laboratory study with undergraduates tasked to assign merit points to a fictitious employee (Katz-Navon & Erez, 2005). In this study, teams with higher efficacy correctly completed greater numbers of recommendations than those with lower team efficacy, but only in conditions requiring high levels of interdependence (Katz-Navon & Erez, 2005) Thus, it appears that collective efficacy may be positively related to team performance but only in some cases. The inconsistency of these results suggests that research examining this relationship should necessarily include objective performance measures.

Meta-analytic research suggests that collective efficacy predicts team performance, but that the relationship may be mediated by task interdependence (Gully et al., 2002). A meta-analysis conducted by Gully et al. (2002) explored the relationship between team efficacy and team performance. More than 60 articles, primarily from the psychological literature, were retrieved and coded according to level of analysis (individual vs. team level), and the type of interdependence required for task, goal and outcome. Results of this meta-analyses showed that teams with higher levels of efficacy had higher levels of team performance (r = .41), but that interdependence did moderate the efficacy/performance relationship. More specifically, results showed that efficacy was more strongly related to performance when interdependence was high rather than low. This suggests that teams may be more likely to show a strong relationship between efficacy and their performance when the task requires more coordination amongst team members. However, in this area of research, the results are inconsistent and largely task dependent.

It is safe to say that collective efficacy has some links with positive team performance and with other key team processes (e.g., cohesion), but there is little evidence of a strong empirical linkage with readiness on its own. Future research will have to address this relationship.

4.3   Personnel Support Programs

Another way in which military systems have made a concerted effort to promote individual readiness is through provisions of a range of personnel support programs. Our review suggests that personnel support programs are often identified as the most direct way through which military systems work to promote and sustain individual readiness. There are many different types of personnel support programs within military systems, addressing issues such as family services, recreational programs, athletics, preparedness, and family adaptation. Within the Canadian Forces, there are a large number of personnel support programs, which are outlined in the sections that follow.

Chief of Military Personnel There are a number of support programs that fall under the CF. The Chief Military Personnel, currently headed by Major General W. Semianiw, provides guidance "to the CF on all military personnel management matters, monitors compliance with CF personnel management policies" and is responsible for the management of the CF Personnel System

(National Defence and the Canadian Forces, 2008a). Specifically, the Chief of Military Personnel offers a number of programs and services relating to careers and training, human resources (HR) support, compensation and benefits, work environment, human resources initiatives, health services, and Director Senior appointments. These services likely have a direct impact on individual readiness in a number of ways.

Programs, such as alternate dispute resolution (ADR), harassment and operational trauma stress support centres are meant to help military personnel who are having difficulties at work or home. For example, the mission of ADR centres is to "build conflict management capacity within CF/DND to strengthen operational effectiveness" (National Defence and the Canadian Forces, 2008a), although this seems to promote a broader form of readiness than individual. The operational and trauma stress support centres assist military personnel and families with operational stresses through a holistic approach which targets psychological, emotional, spiritual and relationship domains. Employees suffering stress and trauma are not ready to jump back into deployment. Recovering from these issues can alleviate worry and increase readiness. The services provided by the Chief of Military Personnel department are one avenue a soldier can take to increase their individual readiness for deployment.

CF Personnel and Family Support Services The CF Personnel and Family Support Services (PFSS) mission is to "enhance the morale and welfare of the military community, thus contributing to the operational readiness and effectiveness of the Canadian Forces" (CF Personnel and Family Support Services, n.d.). The PFSS delivers morale and welfare programs on behalf of the Chief of Military Personnel. The clients who can use the program include all retired or active employees from regular to reserve force, as well as the RCMP. The PFSS is made up of 3 operational divisions. The CF Exchange System (CANEX) is responsible for retail and food services, credit plans and insurance programs. The SISIP Financial Services (SISIP FS) cover insurance, as well as financial planning, counselling and education. The Personnel Support Programs (PSP) includes the services and programs for a number of different areas, including physical health, media, family, financial, social and miscellaneous. This is described in more detail in Table 9.

Table 9. CF Personnel and Family Support services

Areas	Services	Description	Readiness[4]
Physical Health	Fitness	Allows CF members to maintain their fitness levels in order to be physically ready	✓
	Golf	Bases and Wings operate 14 golf courses used by the military community	
	Health Promotion	*Strengthening the Forces* is a health promotion program designed to assist CF members to take control of their health and well-being	
	Training Centre	Trains-the-trainer at CF Base Borden to assist CF personnel in meeting their physical fitness and recreation goals	
	Human Performance	Provides CF personnel with expertise in achieving and maintaining physical fitness by developing relevant and scientifically valid operational physical fitness standards and programs	
	International Sports (CISM)	The CF is one of 131 countries that compete annually to promote sport activity, physical education, and world peace	
	National Sports	Bases and Wings operate sporting events for every athlete	
Media	Amenities Programs	Provides products such as magazines, movies, books	✓
	Canadian Forces Radio & Television	Provides TV and radio to CF members deployed overseas	
	Newspapers	Provides internal communication to 250 000+ service personnel, employees, and their families	
Family	Youth Services	A model of youth services is currently being finalized based on a Nation Youth Summit held in 1999, where youth of military families were able to identify issues of concern	
	Mission Information Line	Toll-free, 24-hour service gives detailed reports about CF deployments	
Financial	Donations	Accepts donations for CF members and families	
	Sponsorship	Delivers an organization's message to more than 250,000 CF members	
	Operation Santa Claus	Sends deployed CF members a Christmas gift package filled with donations, letters and Christmas cards	
Social	Messes	These are the centre of social life and foster morale and promote military values (camaraderie and unit cohesiveness)	
	Show Tours	Plays overseas or in isolated locations to boost morale	
	Recreation	Leisure activities for CF members and families to promote wellness and spending time together	
Misc.	Deployed Ops	Civilian staff deployed overseas to manage and deliver welfare	

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[4] Checkmarks indicate specific references to operational readiness in mandate.

Areas	Services	Description	Readi ness[4]
		programs for CF personnel	
	Director Military Family Services	Manages Military Family Services program	
	Succession Planning	No information available	
	CF Soldier On	Provides services to injured soldiers	✓

Also under the CF Personnel and Family Support Services is the Director Military Family Services (DMFS). The Director Military Family Services manages the Military Family Services program on behalf of DND and the CF. The DMFS has a number of responsibilities, which include

- providing resources that foster the success of the Canadian/Military Family Resource Centres;

- providing professional advice and technical guidance to stakeholders regarding the MFSP;

- creating, implementing and promoting MFSP policies and services; and

- Overseeing and enhancing the resources and performance of the MFSP.

These responsibilities contribute to operational effectiveness of the CF by strengthening families and communities.

Military Family Resource Centres There are a number of Military Family Resource Centres around Canada (Bagotville, Borden, Calgary, Cold Lake, Comox, Edmonton, Esquimalt, Gagetown, Gander, Goose Bay, Greenwood, Halifax, Kingston, London, Mainland, Meaford, Moncton, Montreal, National Capital Region, North Bay, Petawawa, Shearwater, Shilo, St. John's, Suffield, Thunder Bay, Toronto, Trenton, Valcartier, Wainwright, Winnipeg, Yellowknife). The Military Family Resource Centres (National Defence and the Canadian Forces, 2009) provide CF members and families with the following services:

• Welcoming package or visit	• Educational Resources
• Childcare Programs	• Workshops
• Emergency Child Care Services	• Counseling Services
• Children's activities	• Deployment Support
• Youth Services and Activities	• Family Separation & Reunion Services
• Family Activities	• Special Events
• Employment Assistance Services (Spouse & Youth)	• Groups, associations and clubs
• Second Language Training	• Volunteer Opportunities

These services and programs are meant to promote the welfare, well-being and quality of life of CF personnel and military families. The website provides a number of helpful online support groups such as *Canadian Forces Wives and Girlfriends* and *Married to the Canadian Forces*, as well as providing links to the programs mentioned in this section.

Other nations' armed forces also have personnel support programs to promote individual readiness. The Morale, Welfare and Recreation (MWR) programs of the United States military system proved the best documented efforts to promote readiness. These programs range from those intended to support mission performance (e.g., fitness) to community support (e.g., hobby shops, child development centers) to business activities (e.g., clubs, golf courses). Not only has the US Army propped up the MWR, they have also attempted to reveal the programs effectiveness in generating individual readiness.

A recent article by Fafara and Westhuis (2007) summarized the state of the research literature relevant to MWR programs within the U.S. Army. They found that answering the question "Does MWR contribute to Soldier readiness and retention?" has proven difficult from several perspectives. From a research perspective, they argue that problems such as the identification of proper sampling designs and the failure to use appropriate analytic strategies have plagued much of the existing research. Fafara and Westhuis also cite challenges in interpreting significant positive results in terms of being able to generalize from existing research to broader conclusions and the ability to understand the true strength of even statistically significant results. Within such an area of research, they argue, statistical significance is one thing, but the actual ability of these programs to promote observable and meaningful effects is an even more important issue.

In an effort to circumvent some of the problems in past research, Fafara and Westhuis (2007) re-analyzed a set of data from the U.S. Army-wide "Spring 2005 Sample Survey of Military Personnel", to explore the strength of relationship between use of MWR programs and 4 critical outcomes relevant to readiness, including the desire to stay in the Army, unit teamwork/esprit du corps, career issues and satisfaction with Army life. They found a significant impact of using MWR services over the past 2 years on the readiness-related indicators, including unit/teamwork, desire to stay, career and Army life satisfaction, as shown in Figure 17.[5]

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[5] The numbers in the figure represent effect sizes with large effect sizes (e.g. .9) marked in red, medium (.45) in blue and small (.15) in yellow.
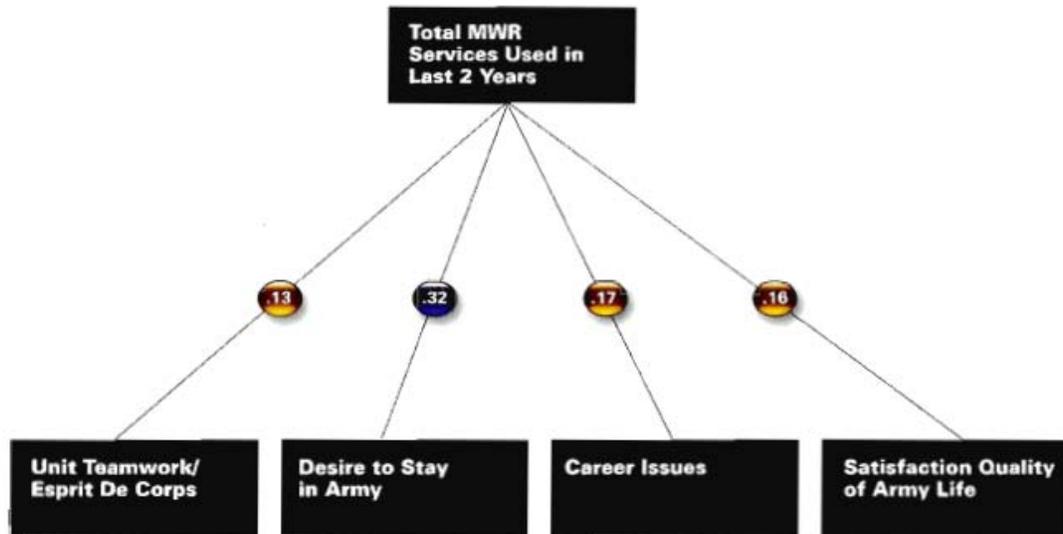
Figure 17. MWR program usage and readiness indicators (Fafara & Westhuis, 2007).

Results showed that using MWR programs is associated with key readiness indicators, but that the effect size, though significant, is modest (Fafara & Westhuis, 2007). Moreover, results showed a significant link between the rates of MWR program usage and emotional attachment to the Army. As will be seen in the following chapter, emotional attachment to the Army seems to promote readiness through soldiers' commitment to the Army. As a whole, then, this research by Fafara and Westhuis' investigation suggests some relationship between personnel support programs and individual readiness indicators. It will be important to explore these relationships within the CF context specifically.

Efforts have been made within the German armed forces to ensure personnel support programs exist. Family members of service personnel are entitled to full family service support due to the stresses the military profession has on family members. According to Kreim (2006), "professional and competent support for the families is absolutely necessary in order to preserve the readiness for duty and motivation of our servicemen and women" (p. 39-2). These supports must know how to listen, give advice and offer services to the families in need. The Family Support Organization in Germany is spread out so that any family member needing immediate support can get to a location within one hour. Services and activities include:

• Point of contact for families	• Voluntary family support work
• Information events on social matters	• Local network integration
• Emergency assistance and deployment area information	• Transportation, discussion, child care
• Liaisons for soldiers	• Media support
• Support in difficult situations	• Post-deployment reintegration (p. 39-4).
• Social and psychological assistance	

We did not identify any research efforts examining the impact of the Family Support Organization in Germany.

Within a complex system like the armed forces, both the formal and the informal supports associated with these kinds of programs are relevant to fostering individual readiness. Even in domains outside of the military system, the importance of informal support systems on individual readiness is prominent. For example, research exploring mental readiness in the police force identified informal support systems as positive antecedents (McDonald, 2006). This research revealed informal support systems, such as mentors, recognition, family and camaraderie as positives influences on mental readiness in police. Both formal (e.g., personnel support programs) and informal (e.g., friends, colleagues) systems are one potential means for developing and sustaining individual readiness.

Following this general overview of personnel support programs, it is important to consider the impact of these on the unit and individual level. Such programs likely will impact overall unit climate and an individual's sense of shared community.

4.3.1   Unit Climate

One of the goals of personnel support programs is to improve the climate within military units. Team climate refers to a team's subjective attitudes, beliefs, and feelings about their team's policies, practices, procedures, or processes (Bower, Campbell, Bojke & Sibbald, 2003, p. 274) These beliefs, attitudes and feelings that comprise a general team climate can be understood to contain several related but distinct constructs, including cohesion, morale and team trust.

Cohesion is thought to be "the most fundamental aspects of groups" (Golembiewski, 1962, p. 149; cited in Driskell, Radtke & Salas, 2003, p. 302) and a key contributor to team performance (Essens et al., 2005, p. 5-18). It is not surprising then that cohesion is one of the most studied team process variables (Gully, 2000). Researchers distinguish between social cohesion, "interpersonal attraction to the team or group", and task cohesion, "group-related affiliation for the purposes of achieving task-related outcomes" (McIntyre, Strobel, Hanner, Cunningham & Tedrow, 2003, p. 3). Research by Bliese and Halverson (1996) has focused on horizontal (i.e., attracted and bonded to peers) versus vertical (i.e., attracted and bonded to leaders or followers) cohesion. Similarly, Siebold's (2007) view of military cohesion in its full dimension adds organizational and institutional bonding to peer and leader forms of cohesion. Our discussion, however, is constrained to the cohesion within teams or units, and as such peer and leader forms are the most relevant.

Some available research illustrates the potential link between unit cohesion and unit readiness. Much of the literature reviewed has advanced the importance of unit cohesion in readiness. For example, Griffith (2006, p. 370) has argued that the quality of the small-unit relationships among soldiers in combat is one of the key sustaining and motivating forces. Research has demonstrated that cohesion has the potential to affect many positive outcomes including greater re-enlistment in the U.S. military, higher team morale, greater satisfaction with working in the military, and a perception of combat readiness (Griffith, 2002). Units who work together cohesively usually have high morale, show teamwork and have a sense of "esprit de corps" (McGonigle et al., 2005). As well, Oliver, Harman, Hoover, Hayes and Pandhi (1999) found a positive correlation between cohesion and readiness within the military environment. Therefore, activities that require team-based effort to succeed (e.g., athletics) may impact readiness by helping to build cohesion.

However, exactly how cohesion works to promote performance remains controversial. For example, a paper by MacCoun, Kier and Belkin (2006) in Armed Forces in Society argues that the importance of social cohesion in motivating military personnel to fight in combat has been grossly overemphasized. In fact, MacCoun et al. argue that there is a large body of literature suggesting that social cohesion has no independent impact on performance.

Research by Ahronson and Cameron (2007) explored the impact of group cohesion and other related constructs with a sample of CF personnel. This study had 2 purposes: 1) to explore the dimensionality of a new cohesion scale, and 2) to understand the relationship between group cohesion, job performance and psychological distress. Keeping with previous theory, group cohesion was comprised of a task-specific element and a social element, but they considered cohesion at the individual level and in terms of integration with the group. Specifically, they argued that individual attraction to the group, to the group via the task (i.e., personal feeling about the involvement in the group task), and integration with the group at a social level (i.e., closeness and bonding perceptions about the group) and at the task level (i.e., perceptions about similarity and closeness in accomplishing the task) were distinct parts of cohesion. Ahronson and Cameron predicted that group cohesion would facilitate job performance. More specifically, they hypothesized that cohesion might promote better communication, which could promote the achievement of group goals. They also hypothesized that high levels of cohesion would also promote high job satisfaction, perhaps because "highly cohesive groups can satisfy individual group members' emotional requirements" (Ahronson & Cameron, 2007, p. 12). Perhaps not surprisingly, they also expected group cohesion to be negatively related to psychological distress. Results showed partial support for their hypotheses, as task-related cohesion predicted job satisfaction. Perceptions of social cohesion in the group were negatively correlated with psychological distress. However, cohesion did not predict self-reported job performance. Ahronson and Cameron reasoned that this might have been the case because their job performance measure was a self-report measure and not an objective measure of performance. Nonetheless, this research shows the relevance of cohesion in predicting readiness-related indicators, such as job satisfaction.

Another factor commonly thought to be a consequence of personnel support programs is unit morale. Morale refers to "the enthusiasm and persistence with which a member of a group engages in the prescribed activities of that group" (Manning, 1991, p. 457; cited in Essens et al., 2005, p. 5-15). Like cohesion, high morale is typically seen by scholars as positively associated with team performance (Essens et al., 2005). Despite the intuitive appeal of morale as having a strong impact on job performance, however, there is surprisingly little literature that seems to show this conclusively. Some research by Weakliem and Frenkel (2006) specifically addressed the relationship between morale and performance within the workplace. This research showed that morale and productivity had a consistent relationship, as levels of morale predicted productivity levels relatively well. This research also showed morale to influence work effort, which resulted in higher levels of productivity. This suggests that if team members lack morale, they will not perform well. On the other hand, a degree of enthusiasm may help teams through difficult times and ensure persistence when faced with challenges.

The levels of trust within a unit or team are also a probable influence on unit readiness as well as individual readiness. Trust reflects "a psychological state that manifests itself in [people's] behaviours toward others" and is based on the expectations we have about other people's behaviours as well as "the perceived motives and intentions in situations entailing risk" (Costa, Taillieu & Roe, 2001, p. 225). Within a team context, trust is predicated on interpretations about the motives and intentions of other people, and often arises in situations with risk, uncertainty and vulnerability (Adams, Bryant & Webb, 2001). Moreover, trust develops over time (Rempel,

Holmes, & Zanna, 1985), often as a product of personal experience and history. In addition, trust may enable efficiency and coordination in small teams (McEvily, Perrone & Zaheer, 2003), and may thus influence other team process factors.

Trust within teams has also received some empirical attention (for a full review, see Adams, Webb & Bryant, 2001). Overall, this work suggests that trust is positively associated with team performance. For example, a previous literature review found that trust was necessary for good teamwork and performance among various types of teams including ad hoc laboratory teams (e.g., Dirks, 1999), work groups (Simons & Peterson, 2000) and Israeli military teams (e.g., Shamir, Brainin, Zakay, & Popper, 2000). However, research has also increasingly suggested that trust within teams may impact indirectly rather than directly on team performance (Simons & Peterson, 2000; Dirks, 1999). In any event, trust is a relevant variable within the climate of the unit that will likely have some kind of role in fostering individual readiness. For example, trust in team members' ability will likely foster collective efficacy, thereby influencing unit cohesion. Similarly, trust might increase one's perception regarding organizational support followed by an increase in commitment to the unit or organizational citizenship behaviour.

Any research effort examining individual readiness should consider the impact of unit climate, including psychological phenomena like cohesion, morale, and trust. As well, as the next section shows, a sense of shared community may also be promoted by personnel support programs.

4.3.2 Sense of Shared Community

A very common group-level (or intermediate) factor noted in the literature to be a product of personnel support programs is a sense of shared community.[6] Working within the U.S. military context, Van Laar (1999, p. xii) defines sense of community as consisting of "social support – an emotional connection among members – and identification with the community – the sense of belonging to a group." She further argues that sense of community is promoted in 9 ways:

- Group symbols

- Rewards or honours

- Common external threat

- Making military membership attractive

- Group size and individuality (best when members are neither too personal nor anonymous)

- Personal influence (e.g., people see the opportunity to make a difference)

- Personal investment (e.g. of time and resources)

- Contact and proximity

- Group activities

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[6] As noted in other sections, creating this sense of shared community occurs in a number of current military structures and processes. The entire basis and raison d'etre of the regimental system is to create a sense of shared identity and common motivation.

All of these factors contribute to a sense of community. The sense of community that is promulgated is said to be a critical antecedent to quality of life and generates personal (or individual) readiness, retention and performance, as shown in Figure 18.
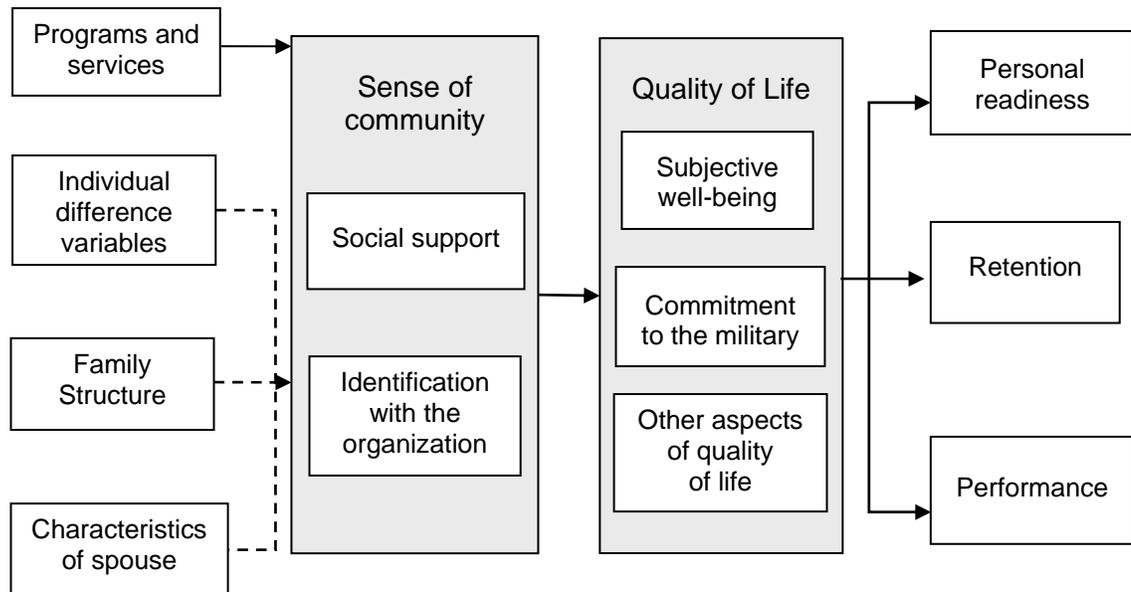

Figure 18. A framework for understanding relationships between programs and services, sense of community, and outcome variables (van Laar, 1999, p. 10)

Starting from the left, personnel programs and services as well as individual and family factors all lead into one's sense of community. According to van Laar (1999), a sense of community consists of social support and identification with the organization. Social support has three distinct subgroups that each contribute to personal readiness, including functional and administrative support (e.g., exchange of small services), informational support (e.g., ensuring that one gets the information that they need) and personal/emotional supports (e.g., the opportunity to develop social relationships and stress buffering through shared experience with others). Social support and identification are argued to increase quality of life, compromised of subjective well-being (SWB) and commitment to an organization. SWB and commitment are important predictors of readiness, performance and retention. However, research by van Laar (1999) also cautions that a strong sense of community may have adverse effects, such as outgroup denigration and loss of individual freedom. Systems should be in place to mitigate these effects.

Even though the importance of shared community is a common theme in the literature, this construct appears to have received relatively little discrete attention. Within military systems, there is a sense in which the ability of the military community to support one another and their families through some of the inherent challenges is likely to be a key contributor to members' individual readiness. Given the strength of even informal supports on military bases among spouses, for example, this sense of community seems a critical one that may currently be underemphasized (or perhaps subsumed by other constructs that are the result of this sense of community).

Within Canada, there is also a clear sense in which the larger community may also play a key role in the promotion of readiness of military personnel and families. For example, the importance of

the "Highway of Heroes"[7] and the initiation of "Red Days"[8] seem to signal a core change in our society's recognition of the sacrifices that military personnel have made through their service to Canada. In a sense, these displays exhibit broader community support for the personnel and families that have been directly affected, but also signal a broader support for the efforts of all members of the CF. It is important, therefore, to consider the sense of community as an important variable to understanding individual readiness.

4.4   Summary

As this chapter illustrates, there are a range of antecedents to individual readiness. It is, of course, impossible to truly "segment" the many different influences into discrete categories while preserving the true nature of readiness. In reality, all of these factors are actually inter-related and difficult to accurately "parse out". However, it is clear that how organizations such as the CF "behave" is likely to play a key role in their effectiveness, and in the readiness of their personnel. Skill training seems likely to have an even more direct influence than organizational factors over individual readiness. Individual and collective training combine to both prepare and sustain individuals encountering stressful situations, in terms of both building technical skills as well as promoting the proper psychological state of mind. Personnel support programs also contribute on many levels, to help promote better functioning at the individual and family level as well as carrying over to help create a better climate within units. The instantiation of these broad antecedents at the individual level is explored in greater detail in the next chapter.

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[7] For more information see
http://www.theglobeandmail.com/servlet/story/RTGAM.20081110.WBwblogolitics20081110192041/WBStory/WBwblogolitics/

[8] For more information see http://www.forces.gc.ca/site/commun/ml-fe/article-eng.asp?id=3338

5. Influences on Military Individual Readiness

The preceding sections focused on defining individual readiness and exploring some of the broad antecedents of it. These included the role of the CF as an organization, the impact of skill training, and the role of personnel support programs. All of these are said to promote a range of group and unit-level outcomes. The sections that follow consider individual-level influences that derive from organizational influences, skill training, personnel support programs. These include some influences having received prominent coverage in the literature, as well as several others likely to impact on readiness, even though they are not highly emphasized in the existing literature. It is important to note, however, that any of the individual readiness dimensions provided here are multi-determined. As such, although each factor is aligned with the most prominent antecedent in our opinion (e.g., fitness is more promoted by personnel programs than by skill training), any given factor could meaningfully reside in multiple other categories as well.

5.1 Organizational Outcomes

5.1.1 Organizational Citizenship Behaviour

Organizational citizenship behaviours (OCBs) are pro-social, altruistic behaviours that are discretionary in nature, not part of the employee's formal role requirements and which are typically performed without the expectation of recognition and reward, but that contribute to the effective functioning of the organization (Podsakoff, Ahearne, & MacKenzie, 1997). These OCB's (e.g., Deluga, 1995) can be categorized as sportsmanship (willingness to accept less than ideal conditions without complaining), civic virtue (behaviour indicating employee is committed to the standing of the organization), and helping behaviour (actions that help prevent work-related problems; encourage others), as well as courtesy and conscientiousness. The exertion of extra effort and willingness to continue working under adverse conditions are examples of organizational citizenship behaviours.

Within the military context, some descriptions of organizational citizenship behaviour have focused on discipline and motivation as well as avoidance of negative behavior (McGonigle et al., 2005). According to McGonigle et al. (2005), discipline is the degree to which soldiers abstain from abusing substances, breaking rules, and being late, whereas motivation, or effort, is the continuance of performing tasks during an unfavourable situation. In this context, prosocial organizational citizenship behaviours are said to influence readiness through the avoidance of negative behaviours and the engagement in positive behaviours.

OCBs have been said to be relevant to a wide range of constructs, including an organization's operational effectiveness. Klammer (1998) discussed one OCB in particular, civic virtue. For Klammer, civic virtue is displayed through behaviours such as speaking out, volunteering, participating in meetings and recommending useful suggestions. He reports that OCBs can contribute to operational effectiveness in several ways. For example, by speaking up, an employee provides an organization with important feedback about how to improve the work situation (Hirschman, 1970; Keeley & Graham, 1991; as cited in Klammer, 1998). Feeling heard and valued may increase the positive feelings that people have toward an organization. This, in turn, could

increase readiness. Murphy, Athanasou and King (2002) examined the relationship between OCBs and job satisfaction. Forty-one Australian human service employees filled out a questionnaire assessing job satisfaction. The facility's principal completed an OCB questionnaire for each participant and records were used to assess OCB behaviours, such as hours contributed to the school, committee participation and social function attendance. Results showed that employees reporting high levels of job satisfaction also showed more OCB behaviours (e.g., higher hours contributed to the school, committee participation and social function attendance) than their co-workers. Thus, OCBs and job satisfaction are closely related. This is consistent with research by Netemeyer et al. (1997; cited in McGonigle et al., 2005) who argues that OCBs result from increased job satisfaction. Another impact of OCBs is that they allow the opportunity for a leader or organization to spread "best practices" and to allow supervisors time for strategic planning (Podsakoff & MacKenzie, 1994; as cited in McGonigle et al., 2005). OCB, therefore, seems to promote a range of positive outcomes relevant to individual readiness (i.e., operational effectiveness and job satisfaction).

An important issue, however, is whether people showing high levels of OCB actually perform better. The literature indicates this is the case. For example, research by Podsakoff et al. (1997) showed that "17% of the variance in organizational performance can be explained by OCBs." However, although this is likely to be a product of enhanced individual performance, research directly exploring the relationship between OCBs and individual performance was hard to find, suggesting that the relationship may be more indirect than direct. Nonetheless, organizational citizenship behaviour is likely to be a critical influence on individual readiness.

5.1.2 Commitment

As noted in the literature, organizational commitment will likely impact on individual readiness. This form of commitment can be described as a psychological state characterizing an employee's relationship with an organization, such that it will impact an employee's decisions to continue employment with the organization (Gade, 2003). Gade (2003) describes organizational commitment as a combination of three components:

- affective commitment (AC);
- continuance commitment (CC); and
- normative commitment (NC).

Affective commitment represents the *want* aspect of commitment and refers to an individual's emotional attachment and/or identification with the organization. Continuance commitment represents the *need* aspect of commitment, such that individuals need to stay with the organization as they perceive themselves to have no other choice or no other desirable options (e.g., there is no other job opportunity for them). Finally, normative commitment is the *ought* of commitment, and refers to the individual's felt obligation to remain in the organization. Put another way, commitment is shown by the degree to which someone identifies with the organization, is actively involved in helping the organization to meet its goals, and intent to stay in it (McGonigle et al., 2005).

Previous research has shown that higher levels of affective commitment are associated with improved performance, but that the opposite is true for continuance commitment (Meyer, Paunonen, Gellatly, Goffine & Jackson, 1989; as cited in McGonigle et al., 2005). This may be the case because continuance commitment is based more on pragmatic considerations, rather than

indicative of strong positive attitudes toward the organization. Given this, McGonigle et al. (2005) conceptualize commitment in their readiness model as being primarily related to affective commitment. There is a strong emotive desire to remain with the organization and this desire likely resides within the employee's close personal identification with the organization and who they are as an individual.

As organizational commitment is a vital concern for the military, both theorists and researchers have explored both the factors that influence commitment and the benefits that it offers. Commitment within the military refers to a service member's strong attachment to serving the military system as an organization and to his or her unit as part of that organization (Gade, 2003). Moreover, commitment to the organization ensures that service members stay in the military, perform their work better, and are good citizens of their organization (Gade, 2003). Military life, however, is often depicted as challenging. Personnel must deal with long hours, frequent relocation, multiple deployments and life-threatening situations with little reward (Karrash, 2003). Despite these hardships, many individuals remain committed to the service. It is, therefore, important to understand what keeps these individuals committed to the organization as this commitment seems tied to their performance.

As reviewed earlier, a recent article summarized the state of the research literature relevant to MWR programs within the U.S. Army (Fafara & Westhuis, 2007). This analysis showed the importance of commitment to the organization (which they call Emotional Attachment) on the 4 key indicators, as shown in Figure 19.[9]

Figure 19. Emotional attachment and outcomes

As Figure 19 shows, feeling emotionally committed to the Army is a strong (but indirect) predictor of several outcomes related to individual readiness. Specifically, emotional commitment is a strong

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[9] The numbers in the figure represent effect sizes with large effect sizes (e.g. .9) marked in red, medium (.45) in blue and small (.15) in yellow.

predictor of unit teamwork and esprit du corps, intentions to stay in the Army, career satisfaction and perceived quality of life.

Some research has explored the antecedents of organizational commitment within a military context. For example, there are also clear indications in the literature that organizational commitment is not simply a product of a single individual's motivation, but that their relevant social systems can also impact. Research has shown that a soldier's commitment is greatly affected by his wife's commitment to the army (Bourg & Segal, 1999; as cited in McFayden et al., 2005). Bourg and Segal (1999) also found that a soldier's commitment to the army will increase when the army shows the soldiers and their families that they are valuable assets (as cited in McFayden, Kerpelman & Adler-Baeder, 2005). Organizational commitment has also been shown to be negatively correlated with job routinization and role ambiguity and positively correlated with pay satisfaction, job involvement, and peer support (Rayton, 2006).

There is also good indication in the literature of a relationship among commitment, readiness and organizational performance indicators. The literature suggests that higher levels of organizational commitment are likely to promote higher levels of individual readiness, and this is well established by existing research (McGonigle et al., 2005). And, as described by Gade, Tiggle, and Schumm (2003), organizational commitment has been shown to predict reenlistment intentions and behaviours, military job satisfaction, unit cohesion, retention intentions, adjustment to army life, perceived combat readiness, and psychological well-being. As a whole, then, an individual's commitment to one's organization has been empirically linked to both readiness and enhanced performance, at least at the organizational level.

5.1.3 Identification

The organizational antecedents noted earlier (e.g., Canadian Forces' policies and procedures, the regimental system, and leadership) all influence identification of individuals. As Brewer (1995) argues, identification with a group requires that membership in the group is seen as a significant aspect of a person's self-concept, and that the individual is more concerned with collective interests than self-interest. In order for identification to occur, a common group identity must be strong, salient and personally meaningful to team members.

A key influence on individual readiness within a military context relates to identification with at least 2 aspects of the military system. First, this includes the individuals' collective identity as a member of the CF, one's regiment or even one's unit. The second is the individual's acceptance of and identification with one's defined role. Although these types of identification are inextricably linked, they are examined separately below.

At the organizational level, identification is promoted through a variety of mechanisms. As noted earlier, common identity is cultivated through regimental traditions, physical artefacts, legends and rituals that are passed down from generation to generation. As noted earlier, identification is argued to be one of the key benefits of collective training (Reineck, 1999). The training regimen also contributes to the development of collective identification as soldiers adopt a "we" identity. Hoffman (1998) describes indoctrinating new recruits into military life requires breaking down and subduing egos and individuality in favour of group identity and group norms. Militaries accomplish this, he explains, through rigid schedules and similar dress and look among recruits. Work by Pigeau and McCann to develop a framework for Command and Control and the associated theory of Common Intent also posit that identification within the military establishment plays an important role in the creation of a common vision and purpose (e.g., McCann & Pigeau, 1996). These

military practices and traditions work to promote a strong and salient sense of identity with the organization.

At the collective level, the goal of many of the recent CF initiatives in recent years has been to promote a higher level of identification. This has involved giving more attention to helping military personnel understand their role as a member of a collective entity as well as to embody the values and high standards of the CF, in service to Canada. Understanding their vocation as a profession of arms, rather than as merely a job is a key part of this process. More globally, the goal of this process is to inculcate a sense of identification with values of the CF (in reflection of the core beliefs in Canadian society as a whole) and to guide behaviour in action in a way that extends beyond simple compliance with complex rules and procedures. This is important, in part, because military personnel encounter many situations in theatre that are not necessarily anticipated in existing policies and procedures. This approach is instantiated in documents, such as "Duty with Honour" and others (e.g., Leadership in the Canadian Forces: Conceptual Foundations).

Another critical nuance of identification with the CF context relates to the full understanding and acceptance of one's role as a soldier. This role is unlike many other vocations, because it needs to be performed in highly complex situations and requires the acceptance of unlimited liability or the recognition that one could literally be required to sacrifice one's life to promote the goals of the CF in service to Canada. As part of their duty as soldiers, combat personnel may be called upon to take the lives of others. Their deep understanding and acceptance of this role, we would argue, are likely to be critical aspects of individual readiness.

Some research accessed for this review provides evidence of the relationship between identification and readiness. In the study of readiness in Army nurses, for example, one key section in the questionnaire related to group integration and identification (Reineck et al., 2001). Relevant questions tapped familiarity with the unit's mission and values, and familiarity with one's roles and duties.

However, the discussion of group and role identification and its relationship with performance in the available literature was sparse at best. Some researchers have argued that the literature reflects weak support for the assertion that organizational identification motivates employees to pursue organizational goals (e.g., Hekman, 2008). However, in our opinion, the apparent lack of strong research may be more related to the fact that researchers have typically focused on closely related constructs, such as morale and cohesion, rather than on identification. As such, a key issue for future work should relate to whether high levels of identification are likely to promote high levels of performance.

5.1.4   Job Satisfaction

Job satisfaction is another potential influence on individual readiness. Job satisfaction can be defined as both the attitude and the feeling that people have regarding their jobs, and, "the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs" (Spector, 1997, p. 2). Job satisfaction has also been defined as the extent to which one's job is personally rewarding and fulfilling (Caliber Associates, 2003). Job satisfaction is an assessment of overall job experience, and arises from many factors, such as one's relationship with a supervisor, the sense of fulfilment of work, perceived congruence between pay and work production, and physical conditions of the working environment.

The available literature about the relationship between job satisfaction and readiness is argued by McGonigle et al. (2005) to be one of the most hotly researched links in their readiness model. This

argument is supported by a Psychological Bulletin review by Judge, Thoresen, Bono and Patton (2001) exploring the relevant qualitative and quantitative research. This review argues that the job satisfaction/performance literature has been specified in at least 7 unique ways, as shown in Figure 20.
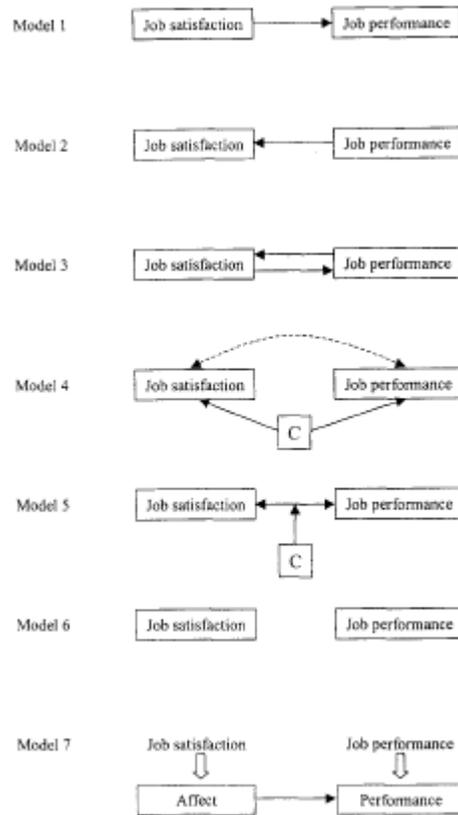
Figure 20. Job satisfaction and performance models (Judge et al., 2001)

After reviewing each of these models and the support for them, they concluded that the results of existing research are very inconsistent, in part because of the "piecemeal" approach, which makes combining research findings difficult. Meta-analytic approaches have helped somewhat with being able to understand this relationship, and their own analysis of more than 300 studies with a total N of more than 54,000 concludes that job satisfaction is moderately correlated with job performance. They also present an integrative model of the relationship, as shown in Figure 21.
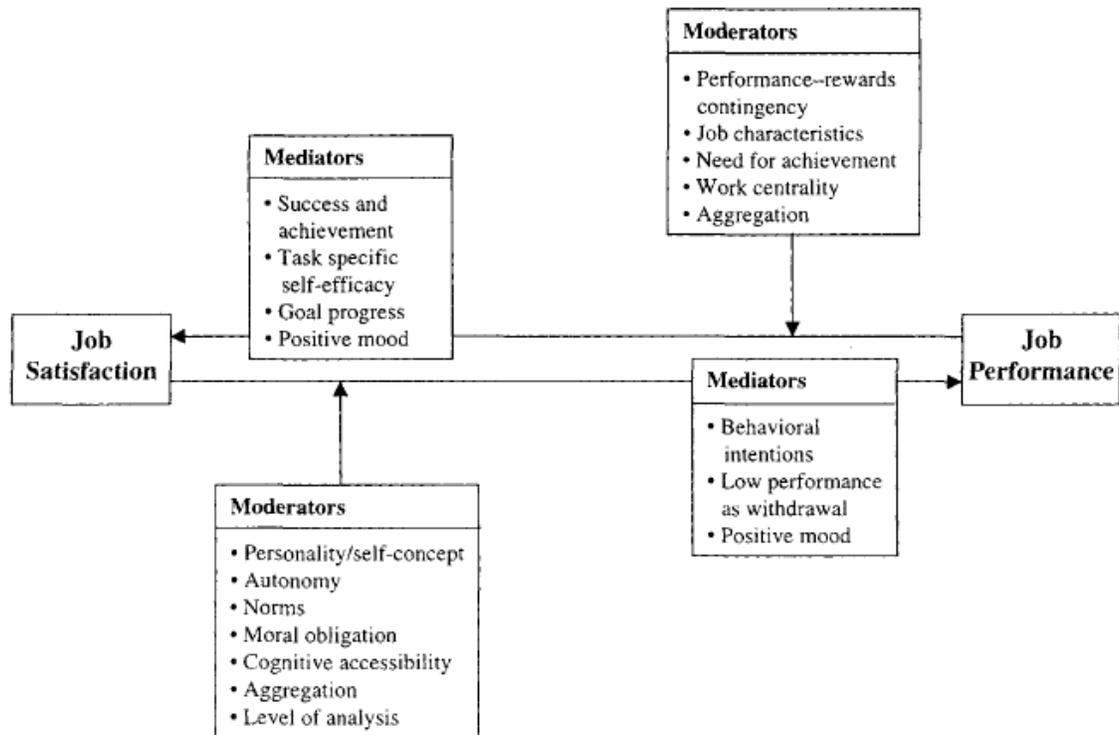
Figure 21. Proposed model of job satisfaction and performance (Judge et al., 2001)

In short, this model holds that job satisfaction and job performance actually affect each other, and that the pattern of reciprocal causality is also influenced by other mediators and moderators.

Research by Netemeyer, Boles, McKee and McMurrian (1997) and Organ and Ryan (1995), for example, have shown a strong relationship between job satisfaction and motivation/effort (as cited in McGonigle et al., 2005). Given this, there may also be a link to readiness. People who are happy with their jobs could be more motivated to perform, be prepared for future tasks, and be committed to the organization than would their unsatisfied counterparts. Research has also shown job satisfaction to be positively related to commitment, unit cohesion and perceived organizational support (e.g. Rhoades & Eisenberger, 2002). There is some suggestion in the literature (Brief & Robertson, 1989; cited in McGonigle et al., 2005) that the strength of the relationship between job satisfaction and readiness is actually underestimated because measures of job satisfaction typically tap cognitive rather than affective dimensions. This suggests that focusing on the affective aspects of job satisfaction will likely yield a stronger relationship to readiness.

As a whole, then, job satisfaction is clearly integral to readiness-related dimensions, such as organizational commitment and organizational citizenship behaviours, as well as being a predictor of heightened performance. As such, this component should be a key part of the study of individual readiness.

5.1.5   Perceived Organizational Support

The perceived supportiveness of an organization in the eyes of its employees is noted in the literature to be an important positive influence on individual readiness. Perceived organizational

support (POS) refers to "global beliefs concerning the extent to which the organization values their contributions and cares about their well-being." (Eisenberger, Huntington, Hutchison & Sowa, 1986, p. 500). A comprehensive review of the POS literature defined it as "assurance that aid will be available from the organization when it is needed to carry out one's job effectively and to deal with stressful situations" (Rhoades & Eisenberger, 2002, p. 698).

Theoretically, perceived organizational support can be understood in relation to social exchange theory. Social exchange theory argues that employees who perceive good treatment by their organization, in return, reciprocate with positive attitudes and behaviours toward the organization (Albrecht & Travaglione, 2003). As such, when employees feel well treated by the organization, they are more likely to "return the favour" and reciprocate in kind. According to a related theory, organizational support theory, POS is created by employees' tendency to attribute positive intent and even ascribe personal concern when they receive meaningful benefits from organizations. This attribution process can result in "generalized beliefs" about the organization's commitment toward them (Rhoades & Eisenberger, 2002, p. 699).

There is good evidence of the relationship between the provision of family service programs and perceived organizational support (McGonigle et al., 2005). Beyond this, however, researchers have also worked to understand other factors that promote POS. A meta-analysis of relevant POS research showed it to have several antecedents, including fairness, supervisor support, organizational rewards and job conditions, with the perceived fairness of the organization being the strongest predictor (Rhoades & Eisenberger, 2002) of perceived organizational support. The impact of perceived organizational support is also not constrained to the individual level. For example, there is evidence that policies used to promote the welfare of employees' families can also enhance perceptions of organizational support (e.g., Allen, 2001).

There is also some indication of the importance of perceived organizational support within the CF system. The annual "Your Say" survey administered to CF personnel (Urban, 2007) contains at least one question relevant to POS. For CF personnel, their acceptance of unlimited liability may be assisted by their belief that they will be cared for by the organization if they are injured. CF personnel were asked about their perceptions that the CF would take care of their needs if they were injured on the job. Results suggested that participants were more positive than negative about the prospects of the CF supporting them. However, there were also rank differences, in that officers believed more than NCMs that the CF would look after their needs if they were injured. Jr NCMs reported lower levels of POS than officers, and Sr NCMs were significantly less likely than Sr. Officers to expect organizational support. Unfortunately, no information linking these perceptions to readiness-relevant outcomes was available.

Pragmatically, however, a key issue is whether POS actually produces critical outcomes, such as promoting higher levels of performance. Exploring the consequences of POS, the same research showed it to have strong positive relationships with affective commitment, job satisfaction, and mood at work. Importantly, POS was also positively related with employees' desire to remain with the organization and negatively related with turnover intentions. It was shown to have medium strength relationships with job involvement, absenteeism and tardiness, and organizational citizenship behaviours. Lastly, POS also has small but significant relationships with actual turnover, and other specific forms of job performance. In general, there is good agreement in the literature about the importance of POS in supporting job performance.

Perceived organizational support seems to play a key role in giving both military and non-military personnel the assurance necessary to perform their assigned roles and the motivation necessary to perform well.

5.2   Skill Training Outcomes

The proposed model posits two primary individual-level outcomes relevant to readiness. These are technical competence and self-efficacy.

5.2.1   Technical Competence

Technical competence takes into account both job-specific tasks and non-job-specific tasks (McGonigle et al., 2005). A number of skills are prominent in military literature, including technical skills (tasks related to the job), conceptual skills (higher-order thinking skills), and interpersonal skills (communication and relationships; Yukl, 1989; as cited in Morrison & Fletcher, 2002). According to Daddis (2004), a leader's "challenge is to evaluate tactical and technical competence and his soldiers' level of psychological preparedness for combat." Having soldiers prepare for the fear they will experience during operations is critical for unit combat readiness. Provided they stay focused on the task at hand and their job, high technical competence might help soldiers cope with the emotional challenges in combat.

The importance of technical competence is particularly emphasized in research by Reineck (1999). Exploring readiness in Army nurses, she identified two different types of technical competence within the nurse population, namely clinical nursing competency and operational competency. Clinical nursing competencies are those skills related to nursing. These skills include ideas of technical proficiency, using field equipment, physical assessment, decision-making, and trauma/triage. Other related skills to this type of competency are pharmacy conversation, care of casualties, and blood and disease management. One main concern with these skills is that they can deteriorate over time. Operational competencies are those skills related to the military. These skills include understanding the mission of nursing care, and the roles and process that influence nursing care. Other related operational skills include knowing how things work in the field, improvisation, and knowledge of operational principles and terminology. Being technically competent in the specific skill required for the job at hand as well as the immediate environment will benefit readiness.

The important role of technical competence in readiness is also emphasized in research by Griffith (2006), as well as evident in prominent models of readiness (e.g., McGonigle et al., 2005). Although this focus is certainly a positive one, however, the measurement of technical competence in this research is limited to self-report measures about the quality of one's training as preparation. Nonetheless, technical competence is likely to be a key part of individual readiness, and no doubt is not difficult to observe given military skills, such as firing a weapon, have particular doctrine and standards associated with them. What may be more significant for individual readiness is the relationship between technical competence and other psychological phenomena, such as self and collective efficacy, job satisfaction, commitment, etc.

5.2.2   Self Efficacy

Self efficacy is the individual's perceived ability to perform a task (Bandura, 1997; as cited in McGonigle et al., 2005). One of the key outcomes of either individual or collective training is to provide the experience and opportunity for individuals to succeed in learning the key aspects of their mission to give them the confidence to perform equally well when they are challenged during the "real" mission. This sense of self-efficacy, then, is likely to serve a number of functions,

including the ability to imagine "best-case" rather than "worst-case" scenarios, and the motivation to push forward because one believes in one's own skills.

The importance of self-efficacy in readiness is indicated in several sources in the available literature. The McGonigle et al. (2005) model posited self/collective efficacy as one of the mediators of the relationship between personnel support programs and readiness. However, they noted that there is no research linking personnel support programs and self-efficacy. In our view, this may not be surprising as individual and collective training may well be more logical antecedents (or at least correlates) of self efficacy. The importance of self efficacy is also indicated in research within the policing domain (McDonald, 2006). Elite officers argued that self-belief (confidence through mentoring and training and taking personal credit for success) were important drivers of readiness.

Meta-analytic research has provided an excellent overview of earlier self-efficacy research. Stajkovic and Luthans (1998) analysed the outcome of more than 114 studies exploring the relationship between self-efficacy and work performance. This research showed a significant correlation across all studies. However, this research also showed that the relationship was weakest when tasks required high levels of complexity and were required to be performed in unfamiliar (e.g., field) environments. This finding has important implications for the self-efficacy/performance relation within the military context, as tasks are often likely to be complex and somewhat unfamiliar when moving from field exercises to operations. One potential problem in these situations, if tasks are not accurately described, is that employees may mistakenly attribute poor behaviour to their efficacy rather than to this lack of clarity. Stanjkovic and Luthans (1998, p. 256) argue that supervisors should provide "clear and objective standards against which employees can gauge the level of their performance accomplishment."

Overall, it will be important to consider self efficacy as an important component of readiness, and that it both contributes to and is shaped by perceptions of collective efficacy. As the personnel in one's unit change, levels of perceived team efficacy will also change accordingly. The "constant" in this equation seems to be one's personal sense of self efficacy and the confidence in one's ability to meet the challenges that may arise, irrespective of team members.

5.2.3 Coping Skills

A key aspect of readiness sometimes associated with appropriate military training is the ability of the individual to cope with a range of stressors and situations. The individual's ability to adapt to stress is noted as a critical aspect of readiness in the literature. Importantly, coping skills have been defined as the ability to fully exploit one's training and experience despite stressors. For example, as Cosenzo, Fatkin and Patton (2007, p. B96) note, "When military training and experience can be brought to bear on performance, even under conditions of stress, one can be said to have achieved a heightened state of readiness." This is an important way of thinking about coping skills. In addition to emphasizing their importance in their own right, they are said to help personnel put their existing skills derived through training and experience into play.

Within the CF, one aspect of training that is intended to occur before deployment is stress management training. This typically occurs in a quick brief given to units about to deploy. Given the stresses that CF personnel are about to encounter, this information about how to recognize and manage stress would seem key to promoting and sustaining high levels of readiness.

Research by Thompson and McCreary (2006) emphasizes the role of mental readiness in the military context. They argue that although the typical training focus has been in training technical

skills, training psychological readiness is just as important. They ask "How do we set about to increase the baseline psychological resiliency of military personnel?" (p. 4-3), and argue that this should be done by integrating basic stress management tools into proactive and dynamic training. They argue that "the notion of mental readiness should be thought of as a trainable skill that can be acquired and developed, much like physical fitness, as opposed to the traditional view of the psychological, as static aspects of personal temperament, character, and strength" (2006, p. 4-3).According to Thompson and McCreary, mental readiness is malleable to some extent. Just as physical fitness can be improved through exercise, mental readiness can be improved through training and preparation.

Thompson and McCreary (2006) argue that, unfortunately, the typical CF military stress management briefing is inadequate for maintaining the highest possible level of mental readiness. These briefings are typically limited in several ways, including:

1) Being relatively academic in tone and presented in sterile ways, rather than meshing with pragmatic operational training.

2) No practical training accompanying stress briefings, which may limit the ability of some personnel to generalize.

3) Fail to address (or overturn) stigmas that some military personnel have about mental health.

These factors, they argue, conspire to undermine the relevance and importance of stress briefing information, and, as a consequence, this information fails to be integrated into the learning of military personnel.

Instead of the current training, then, optimal training should highlight "physiological and cognitive responses to stress, how these responses may affect soldiers' reaction, and the decisions made and the course of action taken" (Thompson & McCreary, 2006, p. 4-1). A key requirement of this training is that it should be centred within the operational context (as such, it must be able to simulate a high level of stress) and is delivered by people with operational experience (rather than by mental health professionals, as is often the case with stress training). Thompson and McCreary argue that training should include mental readiness principles as well as procedural and technical aspects of the mission. This training should use simulation as well as in situ training. They also note that there are several different techniques that could be used to promote mental readiness. These stem from the cognitive behavioural paradigm, which emphasizes the critical role of the individual's construal of a stressful situation in determining the impact of stress rather than the absolute level of stress itself.

There appear to be some elements of such training within the CF system at present. For example, the Peace Support Training Centre at Canadian Force Base Kingston trains United Nations Military Observers (UNMOs) using anxiety invoking operational scenarios.[10] UNMOs are exposed to a variety of situations in which military role players mimic possible scenarios the UNMOs may experience while overseas. Following scenario completion, trainees are encouraged to reflect on their experiences and their own stress responses during debriefing sessions with CF personnel with operational experience. One of the key goals of this training is to help personnel be more aware of how their physiological and psychological responses to challenges and stress could influence their decision-making processes, as well as their performance. Overall, however, despite what we would

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[10] See http://armyapp.dnd.ca/pstc-cfsp/milobs_e.asp for more information

argue as a potentially critical role in individual readiness, there appears to be relatively little discrete attention paid within the CF military system to mental readiness from the perspective of managing stress and coping skills.

A series of six reports has explored the issue of psychological support for military personnel. This program of research evolved as part of a NATO panel, with the primary author being Dr. A. David Mangelsdorff from the United States, as shown in Table 10.

Table 10. Psychological support articles by Mangelsdorff

Report	Topic
Volume I	Psychological support for military personnel: State of the art (1990-1991)
Volume II	Psychological support for military personnel: Self help and buddy aid
Volume III	Psychological support for military personnel: Military leader responsibilities and interventions
Volume IV	Psychological support for military personnel: Self help, buddy aid and military leader guiding principles for psychological support
Volume V	Psychological support for military personnel: International stress workshop
Volume VI	Psychological support for military personnel: Application of psychological support techniques

They define psychological support as involving:

> "the improvement of the psychological situation of the soldier and military group with consideration for the improvement of the combat readiness of soldiers. Psychological support concentrates on the recognition and management of stress reactions of personnel engaged in a variety of situations" (Mangelsdorff, Volume VI, 1996, p. 1).

It would be impossible to characterize all the nuances of this program of research. In short, this research describes psychological support techniques that are likely to be most helpful for managing combat stress and battle fatigue in support of maintaining combat readiness. These techniques range from primarily self help techniques (e.g., breathing regulation, progressive relaxation, self-talk) to "buddy aid" techniques involving peers (e.g., ventilation of emotions, meaningful physical activities) to techniques used by leaders (e.g., timely and adequate communication, enforcing discipline and performance standards). Interestingly, one of the documents explores the different stressors likely to be encountered within different types of missions (e.g., humanitarian, peacekeeping) and provides advice for both leaders and followers/peers to follow to help alleviate stressors, which emerge from the individual, the family, the organization and the situation.

This program of research is an important one, because it attempts to move the management of stress away from the realm of sterile professional care (typically occurring only post-deployment) to self-care and social supports (e.g., one's buddies and leaders), which can occur at any time. It also recognizes a broad range of factors as being potential stressors and aims at identifying training mechanisms that might proactively assist with managing these stressors. As a whole, however, this program of research is somewhat limited because its focus on stress management is somewhat constrained.

It is important to note that the research by Castro and colleagues, reviewed in Section 3.4, seems to have evolved since 1999, and has culminated in training initiatives designed to promote and

support individual readiness. The "Battlemind" initiative within the United States Army is touted as "Armor for your mind" and "a foundation for building psychological resilience." From the perspective of the individual soldier, Battlemind is defined as "a soldier's inner strength to face fear and adversity in combat with courage" (Castro, Hoge & Cox, 2006, p. 1). According to Castro (2008, p. 6), the Battlemind program is a "comprehensive mental health training program that is designed to prepare service members for the demands and challenges of military life and combat." This training emphasizes ten core skills (the first letter of the desired pole yielding the acronym) that should be used to make the adjustment from combat to home:

- Buddies (cohesion) vs. withdrawal

- Accountability vs. controlling

- Targeted aggression vs. inappropriate aggression

- Tactical awareness vs. hypervigilance

- Lethally armed vs. "locked and loaded" at home

- Emotional control vs. anger/detachment

- Mission operational security vs. secretiveness

- Individual responsibility vs. guilt

- Non-defensive (combat) driving vs. aggressive training

- Discipline and ordering vs. conflict

This training program consists of pre-deployment modules for soldiers, leaders, spouses and National Guard/reservists. A post-deployment training module is also available for soldiers returning from combat. The explicit assumption of the Battlemind training program is that "all Soldiers have the necessary skills to successfully transition home" (Castro et al., 2006, p. 5).

Castro (2008) argues that Battlemind has been shown to be effective in several group randomized trials and/or randomized controlled trials, and states that no other mental health training programs have been rigorously scientifically validated. A 2009 article from "Stars and Stripes" notes that soldiers returning from Iraq who had participated in Battlemind training showed few sleep problems and reported fewer severe post-traumatic stress disorder symptoms than soldiers who had not received the training. As such, although the positive effects seem to be somewhat modest to this point, there is some evidence of the power of the Battlemind training to effect positive change.

As a whole, research and literature emphasizing the role of coping skills in readiness is another critical "thread" that is evident throughout the literature. It is also important to note, however, that emphasizing the role of coping skills in readiness may be somewhat challenging to military cultures, in which focusing on personnel's attitudes and feelings about their mission can be perceived to be a sign of weakness. This potential research challenge is discussed in more detail later in this review.

5.3 Personnel Support Program Outcomes

Personnel support programs, of course, are intended to have a range of outcomes, from promoting higher levels of personal fitness to heightening family adaptation to promoting work-life balance. These important aspects of readiness are explored in the sections that follow.

5.3.1 Physical Fitness

Physical fitness is also proposed as an indicator of readiness. Physical fitness is an important indicator of being prepared to perform one's duty. According to the mandate of the CF Physical Fitness Program (National Defence and the Canadian Forces, 2008b),

> "CF Transformation will make the CF more responsive by enhancing our ability to act quickly in the event of crises…The physical fitness of our soldiers…is an essential and critical component of this increased operational readiness."

The emphasis on physical fitness as an antecedent to individual readiness is a clear and consistent assumption throughout much of the literature. This is evidenced in the many fitness programs and efforts conducted within every military system.

Despite having outstanding facilities, professional educators, a health promotion staff, and researched programs, there is some evidence suggesting current state of physical fitness in the CF is not good enough. Based on the Health and Lifestyle Information Study (HLIS), the CF found that while Canadians were reporting an increase in activity levels between 2000 and 2004, CF members reported a decrease in activity levels (as cited in National Defence and the Canadian Forces, 2008b). Specifically, one third of CF members reported that they were inactive and many (81%) of the personnel reported little to no physical activity in their job. Based on the overall results of the HLIS and the three key ingredients to being physically fit (i.e., leadership, motivation and facilitation) courses have been created, procedures and policies have been updated, incentives are in place, and programs are being revamped and implemented (National Defence and the Canadian Forces, 2008b). These findings suggest that diminished levels of physical fitness could have the potential to undermine individual readiness.

Researchers in the U.S. military system have conducted a number of studies linking readiness with physical fitness. For example, within the U.S. Army, the effectiveness of a physical fitness program entitled "The Victory Fitness Program" was explored in the context of physical readiness training (Knapik, Hauret & Bednarek, 2001). This regimen emphasized atypical exercises including precision callisthenics and flexibility training, and its impact was compared with conventional physical training. Results showed that the new fitness program yielded lower injury rates and promoted higher success rates on the Army Physical Fitness Test. This suggests that heightened physical fitness is also likely to promote higher levels of readiness. Unfortunately, this study did not directly explore readiness. At the family level, research by Westhuis, Marshall-Mies, Turner, Fafara and Sea (2007) found a link between fitness and readiness in data analysed from the 2004/5 Survey of Army Families. This research showed a small but positive relationship between fitness and family-related indicators of readiness/retention. Specifically, spouses who used the fitness programs were also more likely to want their soldier to stay in the army until retirement, intend for their spouses' army career to continue, and to be satisfied with the quality of army life.

Overall, then, the link between physical fitness and individual readiness seems to be a very strong one, but one that seems to be more assumed than rigorously validated in the available research.

5.3.2 Family Adaptation

Both within and outside of the Canadian Forces, a key focus of personnel support programs is to help families maintain the necessary levels of social support even through difficult times. Family adaptation is defined by an external dimension— the degree of fit between the family unit and the environment—and an internal dimension—the functioning and interdependency of family members

as a unit (Caliber Associates, 2003, p. 13). Social support can be informal, as in the case of family or friends, or formal, such as community resources. The readiness of CF personnel is likely to be closely linked to the families' ability to anticipate and to manage the pressures of living within a military system (in the case of nuclear families) and/or for more peripheral family members supporting CF personnel from outside the system. As one CF member stated, "A happy family (at home) means a happy soldier (on deployment)" (Sharpe & English, 2006, p. 2). Similarly, the readiness model by McGonigle et al. (2005) argues that family adaptation is a key mediator of individual readiness.

As a concept, family adaptation seems closely linked with a range of other constructs, such as family well-being, work-family fit, and family resilience. In terms of family well-being, Booth et al. (2007) reports that the well-being of families can impact readiness. Keane (2001) describes well-being as "the personal—physical, mental, and spiritual—state of Soldiers...and their families that contributes to their preparedness to perform and support the Army's mission" (as cited in Booth et al., 2007, p. 68). Well-being is a broad construct, encompassing quality of life, family adaptation, mental health, marital satisfaction, physical health and financial ease.

Family adaptation is also related to work-family fit. According to Tend and Pittman (1996; cited in McFayden et al., 2005, p. 142), "fit is the balance that is perceived to exist between the needs and abilities of the family as a unit and the rewards from and demands of the workplace on the family." The lack of time with the family and extended separations create difficult work-family balance issues, typically not experienced in other career domains (Booth et al., 2007). Specifically, family members often harbour concerns about the length of deployments, and their frequency and unpredictability. Family members can also feel lonely, uncertain and experience new roles, such as coping as a single parent. Research has shown that families who are prepared (both psychologically and pragmatically) adapt to deployments better than families who are not prepared (Bell & Schumm, 2004; as cited in Booth et al., 2007). However, there was also indication in this research that families of reservists are likely less prepared psychologically and administratively for deployment than families of soldiers in the regular force.

The available literature provides some evidence of programmatic efforts to promote family adaptation. For example, research by McFayden et al. (2005) examined whether participation in the U.S. Army Family Team Building (AFTB) program would promote higher levels of knowledge about the military lifestyle, and whether this information leads to more satisfaction and sense of fit with army life. This program was initiated in response to unnamed "lessons learned" in Desert Shield and Desert Storm, and had been shown in previous research to improve family coping and adaptation (Orthner, 2002; cited in McFayden et al., 2005). The AFTB program is taught by volunteer instructors, and provides introductory, intermediate and advanced levels. At the introductory level, for example, family members are taught about the structure of the Army and its jargon.

Army wives attending an AFTB course filled out questionnaires assessing work-family fit and satisfaction. Questionnaires were administered immediately before (Time 1, n=69) and after (Time 2, n=63) the first course, and again five weeks later (Time 3, n=26). Work-family fit was measured by the Teng and Pittman (1996) work-family fit battery, which considered the demands of the workplace, ability of the family to meet demands, and rewards of the workplace to meet family needs (as cited in McFayden et al., 2005). Satisfaction was measured by the Survey of Army Families IV (Peterson, 2002; as cited in McFayden et al., 2005). McFayden et al. (2005) were also interested in participant's AFTB knowledge related to pay, procedures, resources and structure.

Results showed that military wives knew more about military life after completion of the AFTB course. Participant's perceptions of the rewards of the army to meet the family needs were more positive after the course. Participants' increases in AFTB course knowledge were significantly associated with higher levels of satisfaction about military life. Also, participants who felt the rewards of the army met the needs of the family also were more satisfied than participants who did not perceive the rewards to meet family needs. Unfortunately, there was no evidence that participant's perceptions of work demands and family coping were significantly altered by the AFTB course. The most influential indicator of work-family fit was the perception of rewards and family needs. In conclusion, after the AFTB course, participant's perception of work-family fit and knowledge in the military increased, and knowledge gained from the course positively influenced participants' satisfaction. This suggests that work-family fit may be an important component of family adaptation.

The concept of family resilience is also relevant to family adaptation. An annotated bibliography was created by the Centre for Operational Research in Ottawa, and presents a range of theory and research relevant to the issue of family resilience (Pepin & Sudom, 2008). These include reports from both academic and applied domains that address issues, such as social support and family separation. Research by Booth and colleagues (2007) focusing within the U.S. Army contexts argues that family resilience is a product of formal supports both from military organizations and groups as well as from civilian organizations, combined with informal networks (family, friends and neighbours) and varying sources of information, as shown in Figure 22.
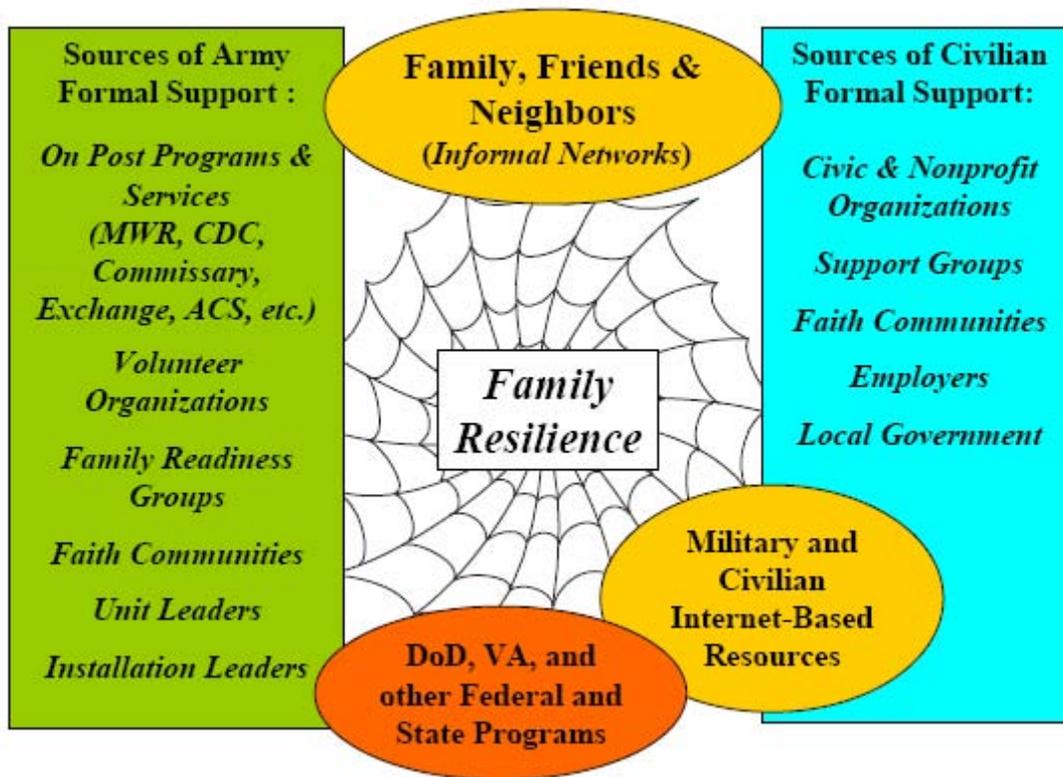

Figure 22. The "Web of Support" for U.S. Army families (Booth et al., 2007, p. 103)

The concept of a "web" of support is apt because it also represents a safety net if the resources of a given family are challenged. One of the ways in which personnel support program might help to sustain readiness is through helping families to understand and to positively construe what they are likely to experience. There is indication in the literature of the families' "social construction" of the deployment being a predictor of their level of adaptation and coping with the challenges that arise (Booth et al., 2007, p. 34). Every deployment requires sacrifices on the part of the family – when they believe these to be worthwhile (e.g., important to their service to the country), the sacrifice may be seen as worth it. Perhaps by joining together with other families through recreation and other activities, they may come to see their experience from a shared perspective.

Unfortunately, despite its potential importance to readiness, the literature relevant to family adaptation seems to be particularly poorly developed. Future research will have to work to understand how adaptation of families impact on the ability of military personnel to stay prepared for the challenges they will face.

5.3.3 Work-Life Balance

One of the biggest issues facing many military personnel is attempting to balance the demands of their work with those of their family systems. Work/life balance refers to an equal distribution of time, involvement, and satisfaction between work and family life (Greenhaus, Collins & Shaw, 2003; as cited in Pickering, 2006). It is important to distinguish this construct from family adaptation. Family adaptation refers to overall ability of the family to adapt as necessary to deployments and other stresses. Work-life balance, on the other hand, is an individual-level construct which refers to the ability of the individual to find the proper mix between the demands of one's work and the demands of one's personal life, whether this is equitable or not. Although the two constructs are clearly related, they should be construed as distinct. For example, it would easy to imagine families who were very adaptable, but for a military personnel to have supported the family's functioning at the expense of work demands (or vice versa).

Work-family conflict is one of the most common symptoms of a work-life imbalance. This includes time conflicts, role strain, and incompatible in-role behaviour patterns (Greenhaus & Beutell, 1985; as cited in Pickering, 2006). Work-family conflict is argued to occur when either the time or specific behaviours required in one role make it difficult to meet the requirements of another role (Greenhaus & Beutell, 1985; as cited in Pickering, 2006). As Segal (1986; as cited in Pickering, 2006, p. 1) stated, "workplace and the family are both 'greedy' institutions, demanding loyalty and time from individuals." For a CF member, for example, the requirements of one's role as a soldier may at some point be incompatible with being a wholly accessible parent (i.e., because of demands to deploy). When this happens, conflict may occur within the family.

A key aspect of work-life balance, it would seem, stems from believing that the needs (and wishes) of all family members are given the appropriate weight and consideration. If the work requirements of one person overshadow the demands of other family members, this could lead to both an imbalance as well as conflict within the family. Failure to achieve work-life balance is cited as the major factor in U.S. military soldiers choosing to leave the Army, even above salary considerations or lack of opportunity (Booth et al., 2007).

Pickering (2006) examined relevant research relating to work-life balance and operational effectiveness. In keeping with previous literature, this report focused primarily on work-life conflict, as this is the most common focus evident in the literature. Pickering (2006) notes that the Canadian Forces Health and Lifestyle Information Survey undertaken by Patterson (2006), for

example, showed that almost half of the 16 most common workplace stressors stemmed from work-life balance or work-life conflict stressors. She reports that 15% of participants indicated trouble balancing work and family life and 25% indicated they had missed family functions in order to meet their job demands. This pattern is consistent to that seen in a report by Jeffries (2001a, 2002b), in which CF personnel reported the need to have their deployment times reduced to spend more time with their families (as cited in Pickering, 2006).

Other results from the 2007 "Your Say" survey also show other work-life areas likely to impact on individual readiness (Urban, 2007). Participants in this survey were asked about the impact of their postings on other key family member activities. These related to the following questions, "Postings are having a negative impact on my children's education" and "Postings are having a negative impact on my spouse's employment." Importantly, CF personnel generally disagreed that their children's education and spouse's employment were being negatively impacted from postings. However, participants in the Air Force and Army agreed significantly more than those in the Navy. Participants' ratings of the impact of posting on their spouse's work were also in the neutral range. Six other items directly assessed CF personnel's work-life balance, related to having more to do than one can comfortably handle, to having to make arrangements for one's family because of work, scheduling conflicts (work vs. personal), and the military as a vocation (i.e., "The military is a way of life and can never be just a job."). Participant ratings on these items were all in the neutral range, but there were 2 differences as the result of rank. Specifically, Jr NCMs reported that their work schedule conflicted with their personal life less than Sr NCMs, and significantly less than Jr and Sr Officers. The average amount of hours worked was 44.57 per week, with Officers working on average more than NCMs. This relatively recent study seems to paint a fairly optimistic picture of work-life balance among Canadian Forces members. At the same time, however, it would be important to ensure that the participants who agreed to participate were representative of the CF members as a whole, rather than the most optimistic and positive CF members, as participants were self selected.

The relationship between work-life imbalance and critical performance indicators is also important to explore in more detail. Previous research has shown high levels of work-family conflict to be associated with lower levels of job satisfaction, more turnover (Kossek & Ozeki, 1999; Allen et al., 2000; as cited in Pickering, 2006), more intentions from spouses to leave the military, and less marital satisfaction (Durand, Burrell, Stetz & Castro, 2003; as cited in Pickering, 2006). Soldiers with high levels of work-family conflict also had poorer unit cohesion, combat readiness, morale, and unit leadership, than soldiers with low levels of work-family conflict (Britt & Dawson, 2005; as cited in Pickering, 2006). In summary, work-family balance tends to influence a range of critical outcomes such as job/marital satisfaction and attrition. As such, it is also likely to be a key influence on individual readiness.

5.4   Summary

To sum up, individual readiness is influenced by a range of factors derived from organizational influences, the impact of skill training and the provision of personnel support programs. Our review suggests that the literature relevant to specific influences on individual readiness has developed unsystematically, and that the many different dimensions in play appear to have received varying amounts of empirical attention. The research that has been conducted often comes from the organizational effectiveness literature, which has explored the relationship among constructs, such as commitment, identification and perceived organizational support, often in relation to outcome indicators such as retention and turnover. However, as our review suggests, the

empirical linkage with the readiness construct is better developed for some readiness dimensions than others. For instance, although there is some military research exploring the impact of organizational commitment, our review showed little research directly linking identification and readiness. For the future, it will be important to undertake more specific explorations of the literature in the relevant readiness domains in order to further understand the potential links to both readiness and to performance.

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# 6. Draft Model of Military Individual Readiness

This chapter presents a draft model of military individual readiness. In developing the draft model, we have attempted to focus on the constructs that received the most attention and support in the literature as being important to individual readiness. As the current literature specifically related to individual readiness is somewhat underdeveloped, we also relied on our knowledge, understanding and intuitions about the nature of individual readiness within the Canadian Forces context. Of course, all of the assumptions and decisions that we have made in developing this draft model (and, of course, the final product) should be subject to both debate and empirical validation.

As is evident through this review, it is extremely difficult to disentangle all of the different factors and levels of analysis in play that are relevant to individual readiness. For example, any of the factors that promote excellent organizational functioning will likely promote higher levels of readiness too. Understanding the pattern of influence amongst the many different constructs in play is also very difficult. Talking about the relationship between readiness and personnel support programs in the U.S. military, for example, Buddin (1998, p. xviii) argues that "The inherent problem is that it is hard to separate cause and effect. For example, are service members happier because they exercise in fitness centers, or do happier people work out more?" Researchers such as McGonigle et al. (2005) have argued that personnel support programs promote readiness in conjunction with a proposed set of mediators. These mediators are influenced by personnel support programs, which in turn, impact on the core components of readiness. Although McGonigle et al's model is one of the most developed in the literature and founded in some empirical research, we would argue that the available research seems inadequately developed to be affirming at this point complex hierarchical relationships among constructs. At this point, then, it may be helpful to think in terms of correlates rather than formal mediators. One of the key goals of a future research program should be establishing the relationships among the many different constructs in play.

Another key challenge in creating a model of readiness is exactly how readiness should be conceptualized. Existing models by McGonigle et al. (2005) were helpful in shaping our conceptualization of readiness. As noted earlier, they argued that individual readiness is a combination of 6 factors, including unit cohesion, fitness, technical competence, organizational citizenship behaviour, preparedness and commitment. However, the McDonald model (2006) of policing excellence, although very different, also offered an important perspective on readiness. These two models actually seem to represent 2 different perspectives on readiness. The McDonald model (2006) speaks to the actual psychological characteristics of a person who is "ready", whereas the McGonigle model (2005) discusses more about specific influences on readiness and indicators of readiness. Indeed, it is hard to distinguish the factors that promote readiness from the factors that <u>are</u> in fact readiness.

The model of readiness that emerges from this review conceptualizes it as an individual-level construct that is influenced by a range of factors at higher levels. Specifically, this model posits readiness to be a product of broad factors (e.g., organizational, training), as well as unit, family and individual-level factors. Our draft model of military individual readiness, then, is shown in Figure 23.

Figure 23. Draft model of military individual readiness
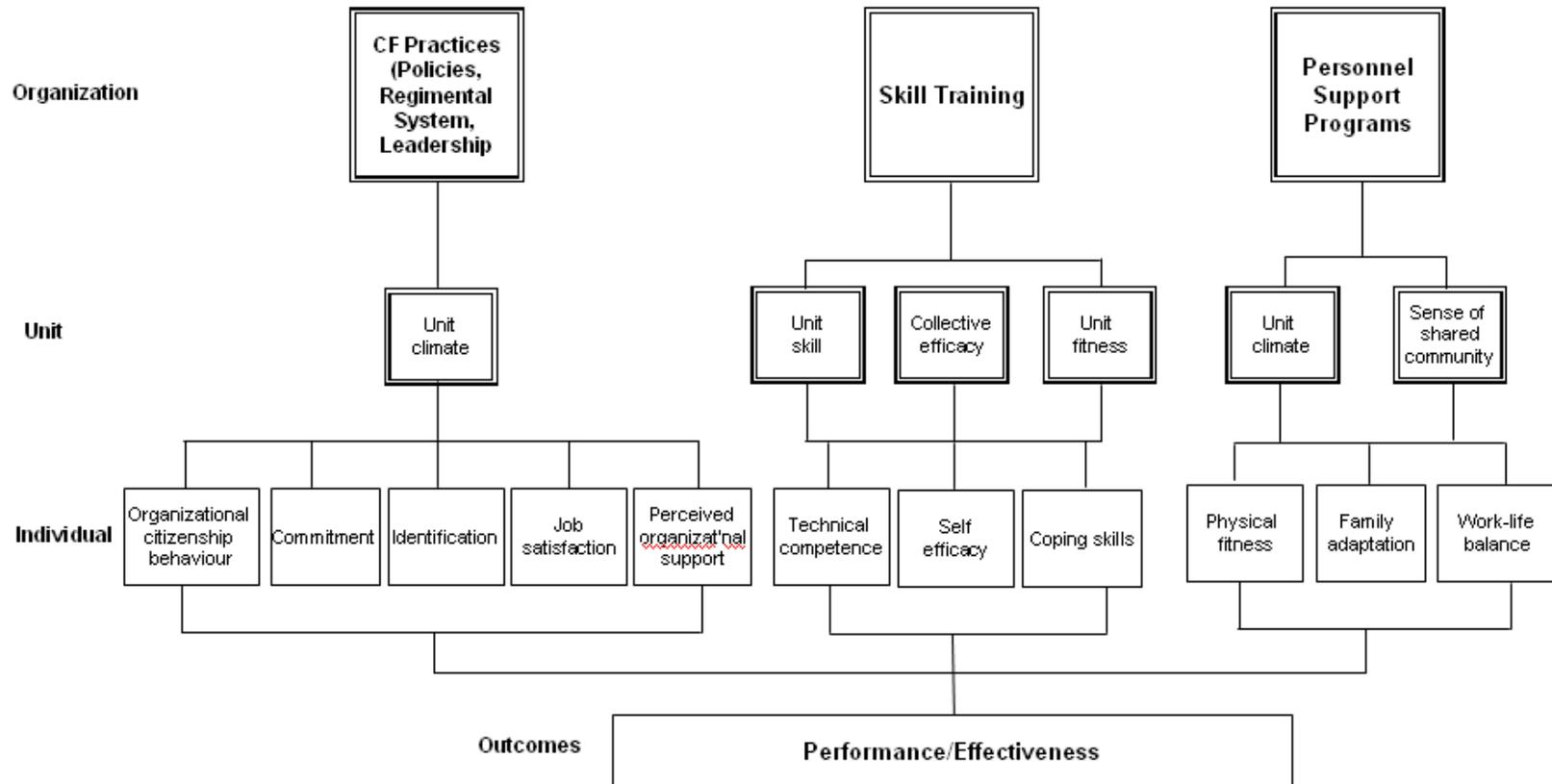
Several aspects of this model are worth highlighting in more detail. It is important to note that the many different interrelationships among constructs are not fully indicated in this diagram. To do so would have made it more difficult to interpret and understand. Moreover, although the dimensions of individual readiness are "lined up" under the unit and organizational antecedents that we believe are the primary influences, these factors are simultaneously affected by all of the broad antecedents.

Our draft model casts individual readiness as an antecedent to optimal performance and effectiveness. Prominent approaches to understanding individual readiness seem to cast individual readiness as an end in itself, rather than as a means to an end. Moreover, there seems to be an implicit assumption that high levels of readiness will also promote better and more effective performance, and perhaps this certainty has contributed to the underdevelopment of research in this area. Although the individual readiness of each member has value in its own right, the key goal of the Canadian Forces system is ultimately about ensuring the levels of performance necessary to achieve strategic, operational and tactical goals.

Moreover, there is the sense in which even the current draft model may or may not fully capture readiness, because it may actually be more than the sum of the many influences that join to form it. In this sense, individual readiness may be more than the sum of a range of factors, but represent a core ability that extends beyond this. As one participant in a focus group exploring readiness in Army nurses said, "Readiness is what you are, not what you know. That's a frame of reference we have a problem accepting. It's not to do something, it's to be. We need to change it from something that's out there that you might have to do…to what you are" (Reineck, 1999, p. 253). At its core, readiness represents the abilities, resources and motivations of the individual to be prepared to face whatever challenges might arise. These issues should be explored more as the future program of research evolves.

Another aspect of the model that should be further explored is the relative importance of the many different factors for different people. The model implicitly argues that each factor is important to each person, and this might not be the case, when we consider that each individual will likely express readiness uniquely. It may be possible for one of the factors to be much more integral to one's individual readiness than others for a given person. For example, someone highly committed to one's family, work-life balance may be much more influential than organizational citizenship behaviour. Similarly, it will also be important to understand other possible factors that might impact on readiness that are not depicted in the model. It might be possible for people to show similar levels of all of the different influences, but actually be at a lower level of readiness. Some potential contributors to readiness noted in the literature but not given coverage in this review are individual differences, such as hardiness or dispositional optimism (Thompson, Gignac & McCreary, 2004). This should be explored for possible inclusion in the model as it develops.

Overall, then, this model is intended to stimulate discussion around how individual readiness should be conceptualized as well as provide the initial framework for a future program of research. As noted, it should be further debated, refined, and eventually validated. Hopefully, it will prove usefulness to the future program of individual readiness research that is described in the chapter that follows.

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7. Research Recommendations

This chapter explores possible areas of future research, identifies features of the research program, and several research topics that could be pursued.

7.1 Overview

As we consider future research efforts, it is necessary to recall the critical question driving this literature review, which is:

> "Would a system for personal support based on a holistic (multi-disciplinary) approach to individual well-being, with or without integration with a managed readiness training system (or something comparable), improve the readiness of soldiers to achieve operational effectiveness?"

We have interpreted the phrase "system for personal support" to extend beyond formal military personnel support programs, and to include any systematic effort intended to promote individual readiness. In attempting to answer this question through this review, we have considered a range of factors at different levels that might contribute to operational performance and effectiveness. Our review suggests that it will be important to take a multi-disciplinary view, because physical, psychological, and even organizational factors are all key aspects of readiness.

The simple answer to the question is that there is some evidence that providing a broad range of supports to personnel will likely promote higher levels of readiness and/or improve soldiers' performance. For example, there is good evidence that promoting readiness-related factors, such as job satisfaction, commitment and work-life balance, will lead to higher levels of performance. However, strong and coherent research showing this is not available for all of the constructs likely to count as indicators of individual readiness. Moreover, much of the literature that does exist is derived from non-military domains, and as such its generalizability is unclear. The current empirical data are suggestive but not conclusive. Within the military domain, however, there seems to be a clear belief that a range of formal supports are likely to foster higher levels of readiness.

A major theme noted throughout the review is that the context within which an individual works within the CF could greatly influence readiness levels. This suggests that attentiveness to the nuances of the relevant context and culture will be important. Our draft model identifies the unit level as an important contributor to individual readiness, and this relationship requires further understanding. For example, how units move between individual and collective training and how they work to cultivate a sense of unit cohesion are likely to be important antecedents of individual readiness. We also argue that one area requiring more attention is the role of organizational structures and practices in influencing individual readiness. Clearly, recent research exploring Army culture, for example, has highlighted many of the potential issues that could impact negatively on individual readiness. For example, the relevance of leadership in shaping subordinates views of the organization will impact individual readiness in areas such as morale, commitment and retention, unit cohesion, and job satisfaction. Antecedents beyond organizational issues are also likely to impact. A future program of readiness research would probably need to "cycle" somewhat among different antecedents.

Throughout the future program of research, it will also be important to put time and effort toward understanding the nuances of the future battlespace, because this will have a big impact on

individual readiness. For example, given the stated importance of unit cohesion and the informal social supports that can promote the readiness of military personnel, the fact that future operations are likely to be increasingly networked and distributed has the potential to impact on how readiness will be sustained. The important role of direct and personal leadership in a distributed environment may be very different, suggesting that a key part of sustaining readiness will involve understanding how best to promote readiness-related constructs, such as unit cohesion and group identification, in collaborative and increasingly diverse environments.

The context in which CF personnel are operating will have a huge impact in understanding individual readiness. For example, research should determine if some components of individual readiness are more critical in some contexts (e.g., combat operations vs. peacekeeping) than in others. However, although recognition of these different contexts is important, it may not be feasible to attempt to undertake a systematic program of research that considers each of the relevant contexts with an equal level of effort. Within some of the contexts in play, for example, it might be realistic to conduct research that could either directly or indirectly promote higher levels of individual readiness. This may be the case if research could show the positive impact of a particular training regimen on readiness. Influencing CF policies and procedures at the organizational level may not be feasible, at least in the short and mid-range term. At the early stages of the research program, it may be more realistic to simply identify what the influences on readiness are at the organizational level without the intention of modifying or changing them. Of course, this depends on what the purview and scope of a potential DRDC Toronto research program is seen to be.

Every form of scientific inquiry requires decisions about how to focus the topic of study, and what exact aspects of this topic will receive weight and attention and which will receive less attention. In our opinion, one of the key decisions that researchers pursuing a long-term program in the area of individual readiness will need to make is exactly how they will target their efforts. This should be a discrete and conscious decision, as there are many topics and different ways in which future research could proceed. This suggests that it may be helpful to attempt to "lay out" all the possible areas and explore the potential for each to make a critical long-term impact on military individual readiness within the CF, while simultaneously considering the strengths and interests of the prospective research team. The areas, within which these two intersect, of course, would likely yield the most return on research efforts.

Our opinion is that any future program of CF research should ideally strive to meet the most pressing or critical needs of the CF. Research programs often face time and resource limitations. Given the scope of the literature and previous research efforts regarding individual readiness detailed in this review, it may be difficult to fully explore it from all possible perspectives. In fact, we would argue that even though it will be necessary to be open to a range of perspectives, it may also be necessary to focus on areas that are likely to be most problematic if readiness is low. The following question represents one possible way to focus research efforts:

> Which CF personnel are most at risk of negative outcomes, if levels of individual readiness are low?

The answer to this question could be a critical determinant to how the future research program is conceived. For example, one might argue that individuals involved in intense and direct combat situations could be at the most risk if they fail to perform in an optimal way, because the stakes are simply higher. This might suggest that constraining early focus within this domain, while aiming to understand whether the readiness issues are similar in less urgent domains might be helpful. Although readiness is clearly an issue for all elements and services to consider, there may be value

in focusing on readiness in contexts that represent the most risks if personnel are not actually ready. However, accessing the expertise necessary to determine the contexts in which readiness is also critical.

7.2   General Areas of Future Research

There are several possible areas of future research that could yield high-impact improvements in individual readiness. The key focus of this work should be on identifying:

- What is the nature of individual readiness?

- How can readiness be captured?

- What factors promote, sustain or diminish it?

- What are the impacts of individual readiness?

In the sections that follow, we explore each of these questions in more detail and present ideas about how future research can provide answers to these questions.

7.2.1   What is the Nature of Individual Readiness in the CF?

First, it would be helpful to attempt to further refine the conceptualization of readiness from the perspective of CF personnel. To accomplish this, we propose focus groups and/or interviews with CF personnel. The purpose of these would be to refine and/or validate the core components of readiness presented in the draft model of individual readiness and explore the target population that is likely to be most at risk if readiness levels are low. A complex construct such as individual readiness may well have a different definition and different implications within varying contexts.

At the first stage, we believe individual interviews are the most helpful. These could be conducted with a range of personnel ideally from all elements. These personnel should systematically represent both NCMs and officers at varying levels, as they may have unique experiences with different levels of support that impact on individual readiness. For example, high ranking officers are likely to be more familiar with the intent of organizational initiatives that might impact on readiness, whereas lower ranking officers may be more familiar with only the implementation of these initiatives. As well, lower ranking personnel are perhaps in a better position to evaluate unit climate than a more distant officer. Considering programs designed to positively impact individual readiness, the probability of a one size fits all is likely low. Particular supports might be more suited for specific ranks. Disentangling these might serve our understanding of individual readiness, and this could be revealed through interviews.

The purpose of these interviews would be to attempt to establish a firm base on which to establish the future program of research. Using a semi-structured approach, these interviews could examine the general concept of individual readiness and generate discussion around what the current challenges are to the individual readiness of CF personnel. Understanding how CF members and leaders see this construct will be critical. At a higher level of effort, it would also be possible to code the interview content in accordance with the number of references or mentions to the readiness constructs posited in the model, as a way of attempting to validate these constructs. If the draft model posits self-efficacy to be a critical factor in readiness, but this factor is never mentioned by a range of CF personnel, this may beg the question of whether this construct is actually a critical aspect of individual readiness. Of course, it would be necessary to structure the interview format so that it does not "pull" for the inclusion of specific factors.

These interviews could also probe for the relationship between individual readiness and performance. Understanding whether readiness is a necessary and/or sufficient antecedent of performance might also be helpful. For example, if a soldier is deemed to be at a high level of readiness, is high performance assured? Similarly, if a unit is performing poorly, would a "readiness intervention" be likely to promote better performance? Interview participants who were identified by their peers as soldiers who consistently performed well in recent operations (i.e., Afghanistan) would be strong candidates as they may have a high degree of individual readiness, which contributed to their successes in operation.

Lastly, these interviews should directly consult CF personnel regarding the focus of the research program. Reflecting on operational experience, it is likely that participants would provide valuable insight into those kinds of characteristics that strengthened and weakened their individual readiness prior to operation. This will provide greater focus to the research program and refinement to the current model developed from this literature review. Moreover, some questions could relate to what types of CF personnel are most at risk of negative outcomes if levels of individual readiness are low. This could help to steer the research toward the most critical domains.

Focus groups obviously have the advantage of access to more participants at the same time, and allow debate and group discussion. These could take a somewhat different approach from the interviews. The interviews are currently framed to use more of a "bottom up" approach, in the sense that the aim would be to elicit the key aspects of individual readiness from the perspective of interviewees rather than to test the value of posited constructs. Focus groups, on the other hand, could adopt a "top-down" approach by presenting and asking for feedback on the posited constructs. Whether or not these two approaches provide converging support would remain to be seen, but they would hopefully allow for a range of views to be expressed. These focus groups could also explore what aspects of the individual readiness model are the most (and least) critical, and whether these different aspects are given equal weight by diverse CF members.

The proposed research activities will hopefully work to both validate and to further refine the concept of individual readiness, and to provide a strong foundation on which to ground additional research.

7.2.2 How Can Readiness Be Captured?

Our review suggests that, although there are some existing efforts to measure readiness, these have typically derived from somewhat different domains, and may not be easily ported into a future research program. For the future, although some aspects of existing measures might be usable either in whole or in part, it will be important to create measures that could be used to assess the individual readiness of CF members. Efforts attempting to capture readiness should be done as the concept of readiness becomes more established, and after the views and ideas of CF military personnel as well as other researchers and theorists have been more fully explored. Provided that a measure that "evolves" is acceptable, it may be possible to do some of the initial measurement work at the early stages of the research program. Ideally, whatever measure is used, it should be based on the coherent concept of individual readiness that emerges as the draft model is further explored and refined.

A common problem in the readiness literature (and in much other psychological literature) is that researchers who are motivated to research a specific problem create measures that are not linked to any theoretical structure, but which are intended to capture a complex construct from a unique perspective. The problem with this approach is the reliability and validity of these measures is

rarely tested. As a consequence, their strengths and limitations are poorly understood. To collect good data, it is necessary to build measures systematically. The challenge for the current research program is exactly how to capture individual readiness, using reliable and valid measures.

Currently, self-report measures are common in the literature, and these represent a potentially important window to an individual's attitudes, feelings and motivations. However, it is also clear that there are inherent problems with relying solely on self-report, and these concerns are well-documented (e.g., Nisbett & Wilson, 1977). It might, therefore, be preferable to work to create both subjective and objective measures of individual readiness. Subjective measures could require participants to rate their status on key dimensions of readiness. In addition, measures directed at obtaining more indications of readiness outcomes could also be developed. For example, behaviourally anchored rating scales (BARS) are one means by which observers (e.g., leaders) could understand the readiness of individuals and units. These kinds of scales, administered by subject matter experts, are specifically designed to measure performance, and thus might provide good insight into the relationship between individual readiness and performance. BARS are also valuable because they provide immediate feedback to the individual or unit under scrutiny. The scales can be integrated into the training system relatively easily, providing the CF with an instrument for assessing individual readiness in the field. BARS could be created at the same time with the interviews and focus groups as validation requires subject matter experts.

Also, to maximize effectiveness, it will be important to consider the domain in which prospective measures will be used. A key consideration will be designing measures that will be accessible to the target population, and which can be completed with the least possible time commitment, and in a range of circumstances (e.g., in both operational and garrison environments). This means that prospective measures should ideally be relatively short and it should be easy for prospective CF members to understand what is required. Depending on how the future program of research is targeted, measures of individual readiness should target the full range of relevant domains, including physical (e.g., fitness levels), skill domains and competencies, and psychological factors (e.g., level of commitment) as critical aspects of readiness.

It would also be helpful to establish the existence of valid and reliable measures of the component parts of individual readiness (e.g., job satisfaction, coping skills, identification). Due to the need to focus our review, it remains unclear whether there might be existing validated measures of these constructs. A focused review of the literature pertaining to one or two components of individual readiness following interviews and focus groups with CF members would be a useful endeavour.

Although it is convenient to talk about a single measure of individual readiness, it is also important to point out that it is necessary to create different measures to serve varying purposes. For example, creating a measure that could be used at the pre-deployment screening stage would be an important contribution. Anecdotal reports about this screening stage in the current CF suggests that it might not give detailed attention to the issue of individual readiness, other than generic questions that one has dealt with a range of specific pragmatic issues (e.g., having a will, family preparations, etc.). Creating a more elaborated measure that addressed readiness issues at the post-deployment stage could also help to address a wider range of issues.

A key aspect of exploring the measurement of individual readiness would involve exploring the availability of existing measures that might be in play within the existing CF research system and to explore their ability to help understand individual readiness. For example, the Unit Climate Profile (Murphy & Farley, 2000), developed within the CF and the Human Dimensions of Operations questionnaires may contain items specifically relevant to individual readiness, and anecdotal reports suggest that they are still administered to various CF units. Similarly, the "Your

Say" survey (Urban, 2007), discussed earlier in this report, also offers a potential window to possible measures of individual readiness. In the short term, it would be helpful to specifically explore what items these scales contain, and what data is being collected within the CF. In the longer term, however, it may be possible to "piggyback" efforts, either through the inclusion of additional readiness items stemming from a future program of research, or perhaps even by influencing what or how readiness-related questions are asked in existing measures. In any event, developing measures will require a systematic approach, which includes ensuring their validity and reliability.

7.2.3 What Factors Promote Readiness?

Future research needs to understand the broad factors that facilitate and maintain the individual readiness of CF personnel.

7.2.3.1 Organizational Policies and Practices

It is critical to examine the organizational factors that might influence individual readiness. However, as the CF system is very complex, it will be important to clearly identify the referent being perceived when attempting to understand attitudes about and perceptions of the organization. For example, there are potential differences in the levels of commitment that personnel might hold for the different parts of the CF as an organization. In such a complex organization, some parts of this system may well invite a higher level of personal commitment than others, but organizational commitment is often treated as a unitary entity. Two people with varying levels of organizational commitment on the surface, for example, may have very different profiles if the target of their individual commitment were fully explored. One's commitment to one's regiment, for example, may be very different than one's commitment to the Canadian Forces as a large system, as the personal connections and level of investment in one's unit may be very different. Moreover, organizations are often understood in terms of particular individuals (i.e., in organizational trust issues these people are referred to as "boundary spanners") and, as such, attitudes regarding the organization are in fact attitudes about particular people viewed as representative of the organization. Clearly identifying the referent and making sure to allow different responses for different parts of the complex system will be critical.

Our review of the literature suggests that the key issue in thinking about organizational factors may relate less to what organizations have "on paper" and more on how organizational representatives actually behave in practice. For example, one of the key procedural safeguards noted in the CF procedure is that returning personnel should receive full debriefs about their experiences after returning from theatre. In theory, the intent of this practice seems to support high levels of readiness, and to indicate both interest and concern for CF personnel who have often faced difficult challenges while deployed. However, as detailed in previous research, senior CF commanders indicated that this often did not occur, and were disgruntled at the failure of the CF to make sure that this procedure was consistently followed (Thomson, Adams & Sartori, 2005). This failure to implement established procedures left CF personnel at the time (the 1990s) with no opportunity to give feedback about their experiences and seemed to give a sense that "the higher-ups" did not care about their experiences while deployed. Moreover, many participants admitted that they were in fact unprepared for the missions that they undertook. Understanding the match between the formal procedures and the actual procedures in use, therefore, would be a critical first step to assessing the contribution of these policies to individual readiness. A historical reflection on the changes

implemented from the nineties to today might also provide a strong backdrop to individual readiness development in the CF.

Understanding the attitudes and perceptions of CF personnel on the following issues would be helpful to assessing their individual readiness:

- How fair is the Canadian Forces toward its members?

- How does regimental identification influence individual readiness?

- Are personnel with high levels of readiness more committed to the CF?

- What kinds of safeguards exist in the CF to ensure members have high levels of individual readiness?

- Are personnel with higher levels of organizational citizenship behaviour, commitment, identification, job satisfaction, and perceived organizational support likely to show higher levels of readiness?

- To what extent does the CF support members and their families who are injured or killed?

The next step, obviously, would involve attempting to determine whether the formal policies and the actual actions of the organization actually impact on readiness and readiness-related constructs. Our review emphasizes the importance of several critical outcomes, such as performance, retention, attrition etc. As noted in Section 5, a wealth of information seems to be available within the current CF research system about the impact of organizational processes on these topics. It will be important to find a way to access some of this information, and to begin to understand them in specific relation to individual readiness.

7.2.3.2 Personnel Support Programs

Our review suggests that personnel support programs are often seen to be a critical antecedent to individual readiness, even though the current evidence shows the effects to be more indirect rather than direct. For a long term program of research, it will be important to understand the link between these and readiness, and to explore the impact of personnel support programs on actual performance and effectiveness.

Our review showed a range of CF programs and services that fall into the category of personnel support programs. Unfortunately, this information did not provide any insight into the quality and usefulness of these kinds of programs from the perspective of CF personnel. A range of questions are relevant to the issue of personnel support programs, such as:

- What is the network of personnel support programs available to CF personnel?

- To what extent are CF personnel aware of the PSPs available to them?

- To what extent are these programs used?

- To what extent do Canadian Forces' personnel see these programs to be effective?

- Do personnel who use these programs actually show higher levels of readiness?

The first step would likely be to understand the full range of personnel support programs (both formal and informal) available to CF personnel. Given the diversity of the CF, it will be important not to assume that the quality of these services is necessarily uniform in implementation.

Another key issue is the extent to which CF personnel are aware of the formal supports available to them. This would be represented by asking them about hypothetical problems that they could encounter, and seeing if they are able to accurately identify existing services that are intended to assist them. Beyond this, the next step would be to investigate the extent to which personnel have either been motivated to use these services if they had a need, and/or have used these services.

A follow-up issue is the extent to which these programs are seen to be effective from the perspective of personnel themselves, as well as from the perspective of objective observers. This could be accomplished by both informal dialogue (e.g., interviews and focus groups), as well as by exploring the outcomes of CF personnel who use or do not use personnel support programs. As well, if the research program is interested in determining whether these personnel support programs are effective, a full program evaluation could be conducted.

Lastly, the key outcome indicator is whether usage of personnel support programs is actually a predictor of higher levels of readiness. This question will obviously be one of the most difficult to answer, but is arguably the most important.

7.2.3.3 Training

Skill training seems to be the most obvious predictor of readiness. We would argue that the relationship between various forms of training and readiness should be a primary focus of future research. Getting a better handle on how training can best facilitate readiness is a critical antecedent to being able to promote positive outcomes within a military system.

The impact of training on readiness should be explored from several perspectives. First, understanding the many different forms of training that individuals receive in preparation for deployment would be the first logical step. For example, CF personnel must meet certain battle task standards before they are considered ready for deployment, and must undergo a range of both individual and collective training. This training process would be important to understand in more detail. As well, considering all of the connections between components of readiness, it is important to uncover the relationships between skills (i.e., technical competence) and other components

For a future program of readiness research, however, it would be important to understand the extent to which these different training activities actually contribute most to individual readiness. This could involve "following" individuals at key stages of deployment preparation, and exploring their perceptions about what aspects of their training were most influential. The forms of training they did not receive that would have been important might also be relevant. Understanding the challenges they faced for which they felt wholly unprepared would be very helpful to identifying what forms of training may be most critical to individual readiness.

Creating and testing the impact of targeted readiness interventions would also be possible in a future program of research. Our review suggests the potential for many different training approaches that could aim at enhancing or sustaining individual readiness. These could focus on understanding the impact of new training procedures and programs that work to build technical competencies or even heighten perceived self- and collective efficacy. Targeted interventions working to promote higher levels of cohesion and morale within units would also be possible. Or, training programs that foster some of the positive benefits of more formal personnel support programs (e.g., family adaptation or work-life balance) would also help to understand the positive effects of personnel support programs on readiness.

Within the CF system, the majority of preparatory training seems to go toward pragmatic technical skills and competencies, with relatively little attention and effort going to psychological

preparation (e.g., Thompson & McCreary, 2006). As reviewed earlier, calls have been made within the CF system for more attention to be paid to providing mental readiness training (Thompson & McCreary, 2006). Rather than the relatively sterile "stress briefings" that military personnel receive from identified stress experts, briefings presented by experienced military practitioners who combine their knowledge and experience with "state of the art" knowledge about stress might be more effective in promoting individual readiness. Helping personnel about to be deployed to recognize their own stress levels and to help them know how to manage these effectively would be an important training strategy to promote individual readiness. For example, the U.S. Battlemind training program is aimed at preparing soldiers for the stressors that they are likely to encounter while deployed, and emphasizes the psychological supports that they can employ in order to manage these stressors. As adequate coverage of this program could not be obtained during this review, a more extensive exploration of this program is warranted, given its claim to promote better outcomes for soldiers returning from recent operations. Empirical work to understand readiness from a stress and coping perspective would also be helpful.

Questions to be explored with an eye to the CF training system include:

- What specific individual training is most critical to achieving high levels of individual readiness?

- What collective training is most conducive to high levels of individual readiness?

- What kinds of targeted interventions would promote military individual readiness?

- Are personnel with high levels of readiness more likely to perform better than personnel with low levels of readiness? Is this evidenced in training?

- What are the relationships between technical competence and skills and other individual readiness components, such as commitment, job satisfaction, etc.?

7.2.4 How Does Readiness Impact Critical Outcomes?

Military systems may be more likely to support a long-term program of readiness research if they see the positive benefits of readiness on what they perceive to be important indicators. Although readiness is valuable in its own right, military systems are ultimately aimed at ensuring consistently high performance on the part of their members. Hence, they are motivated to understand readiness primarily because it is believed to promote valued outcomes. For example, being able to show that high levels of individual readiness are associated with high levels of performance and combat effectiveness would be an important achievement. As noted earlier, there is some evidence in the literature that readiness and readiness-related factors promote individual and group performance. As well, there is evidence that readiness is associated with other critical indicators of effectiveness, such as the intention to stay within a given organization, attrition rates, and turnover. Given the importance of these links, however, we would argue that the empirical research in this particular area remains largely underdeveloped in both the military domain and in general.

However, assessing the impact of a construct such as individual readiness on performance will be challenging from several perspectives. The transition between individual readiness and combat effectiveness is likely to be multi-determined. Combat effectiveness will be influenced by so many other things (both internal and external to the individual) that it may be very difficult to show a consistent link. Moreover, as the research program evolves, it will also be important to distinguish between the factors that impact directly on performance from those which impact more indirectly. Another potential challenge is that the impact of readiness on actual performance may be relatively

subtle, requiring sensitive measures of readiness, clearly defined performance measures and high sample sizes as well as the highest possible level of control on extraneous sources of variance. Unfortunately, military research contexts do not typically have these kinds of characteristics. This is not to say that research in this area is not possible, but preparation for the many possible research challenges will be important.

Another key issue to explore is the contribution of different forms of readiness to performance. The literature suggests that readiness is reflected in how people think (e.g., mental focus), feel (e.g., ability to manage stresses), and in their motivation levels. However, it is unclear whether these different aspects of readiness are equally likely to promote heightened performance. It may be, for example, that readiness driven primarily by motivation may only impact positively on performance if it is also combined with better judgment and decision-making skills. It remains to be seen how the different "drivers" of individual readiness are likely to relate to actual performance and effectiveness.

It will also be necessary to explore readiness at both an individual and unit level. Even though descriptions of unit readiness are sometimes treated as the aggregated sum of individual readiness, there is also a clear sense in the literature that unique processes that occur amongst team members may also give unit readiness a somewhat different quality. In a sense, we would argue that the whole is likely to be greater than the sum of its parts. For example, strong and coherent leadership could lead a team of individuals with a relatively low level of individual readiness into a much higher state. Similarly, teams have the power to change how individual team members "see the world" and can help to give meaning and structure to their role through the promulgation of shared experience and interpretation of that experience. This could heighten their levels of readiness. In fact, one of the key functions of unit readiness may be to buffer the impact of difficult or stressful events that could challenge the readiness of individual team members, and to help them to make sense of their experience. This, of course, is the reasoning behind the "Buddy Aid" concept. The key issue, however, is whether high levels of unit readiness will naturally promote higher levels of performance and effectiveness.

The following questions are relevant to the relationship between readiness and critical outcomes.

- What readiness factors predict specific performance and effectiveness outcomes?

- Do personnel at a high level of readiness perform better than those at low levels?

- How does individual readiness relate to unit readiness?

7.3 Specific Areas of Future Research

One of the key attributes of readiness noted in the literature is that it is dynamic rather than static. For example, Castro's OPTEMPO model (1999b) holds that levels of readiness (and hence performance) depend on operational tempo. This suggests that it will not be adequate to understand readiness at a specific, unchanging point in time, but that it will need to be understood across the entire spectrum of military effort, from garrison to deployment and even over multiple deployments. This includes all of the ways in which military personnel are prepared for their missions.

For example, given the current operational demands, it is critical that after a period of rest and recuperation, military personnel can again begin to build their levels of individual readiness and return to a heightened state. This suggests that it might be valuable to attempt to understand the "time course" of individual readiness. Of course, the OPTEMPO model (Castro et al., 1999b) holds

that readiness is highest at moderate levels of OPTEMPO, but builds relatively quickly as tempo increases and wanes as it decreases. Understanding how readiness "waxes and wanes" over the course of the entire operational cycle (and back again) would be a critical contribution. This could involve tracking the readiness cycle of a unit throughout its cycle and its "ramp up" to high levels of operational readiness. This would require a relatively long commitment. Although such a longitudinal study would be valuable, however, getting the required levels of access and consistency may prove challenging. If it were to occur, the key would be having the time and opportunity to build relationships with leadership and key personnel within the unit, and having enough "lead-time" to convince them of the value of the endeavour.

Another possibility would be to "scope out" the actual readiness-related preparation that CF personnel in the varying categories (see Sharpe & English, 2006) receive before deployment. For example, Sharpe and English (2006) highlight some of the differences in the experiences of personnel preparing for deployment that could affect their levels of readiness. The Sharpe and English (2006) analysis suggests that reservists from a support trade deploying as an augmentee from an NDHQ-type location are likely to be most at danger of being ill-prepared. Personnel from coherent combat units, on the other hand, likely receive the best pre-deployment supports, because the systems that they require are simply more developed and tested. Given that personnel being deployed in CF missions can come from a range of contexts and need to use all available personnel resources to meet mission demands, this may be one of the ways to identify the personnel most "at risk" of having low levels of readiness. There is some indication that augmentees and reservists might be two unique groups worthy of further exploration.

It would also be possible to explore the effectiveness of some of the formal programs intended to promote and sustain individual readiness. Third Location Decompression, for example, was introduced by the Canadian Forces within the last few years to provide personnel just coming off of deployment an opportunity to re-adjust to civilian life. This program provides both mental health briefings as well as recreational activities intended to help ease the transition to "normal" life. In theory, TLD seems to be used to help military personnel recover from whatever strain or trauma they have experienced and promote their ability to return to readiness when required. Pragmatically, however, a key issue is whether TLD helps to sustain levels of individual readiness. This issue would be important to understand.

One of the key research questions to consider is whether the nature of readiness is similar in every part of the Canadian Forces. Although our review has focused its discussion of readiness from primarily a combat Army-centric perspective, individual readiness is obviously critical in all elements. The important issue is whether individual readiness is likely to have the same quality in different elements (e.g., Air Force, Navy, Army), and even for personnel in different roles (e.g., military occupational categories or MOC). The exact nature of these differences, however, is the critical issue for future research.

There are, of course, many possible research approaches for a long-term program of research. Perhaps the typical way is to explore readiness within pre-existing units and to understand their levels of readiness in relation to critical antecedents (e.g., organizational supports or fairness) and outcomes (e.g., performance or retention). Another possible way is to identify units or individuals who are likely to be at an inherently high level of readiness and to attempt to understand the influences on the ability to achieve such a heightened state. This approach is somewhat similar to that used by MacDonald (2006) within the policing domain. As mentioned above, focus groups and/or interviews could also be conducted with CF personnel previously identified by their peers and/or by relevant leadership to represent an elite set which is particularly likely to contain

individuals at a high level of readiness. Understanding how their physical and psychological "make-up" and their training/experience differ from personnel at lower levels of readiness would be one of the goals of this effort. Several elite groups within the CF might be explored as potential candidates for inclusion if this approach were used. These would include highly trained units (such as Joint Task Force Two units) or other elite groups (such as Army snipers). Exploring the potential for working to understand readiness through these groups might be helpful.

Finally, changes in individual readiness as a result of numerous deployments can in fact shed light on those components that are most significant. Commitment and retention levels, for example, may address pertinent readiness issues. It would be worthwhile understanding the impact numerous deployments or rotations have on individual readiness components to determine if this is something that actually can be sustained in the long term or will likely diminish irrespective of an individual's previous readiness level.

7.4   Research Challenges

To conclude, researchers exploring individual readiness are likely to face a range of challenges. One of the biggest challenges will be clearly identifying what is meant by readiness and making difficult decisions about what aspects of readiness will be at the forefront of the program of research. There are so many factors in play that focus will be critical.

When scoping out future research, it will also be necessary to consider the culture within which the program of research will be conducted. It is our opinion that the CF may not have a culture conducive to easily exploring this topic. For example, retired CF personnel, considering readiness within the CF context, have argued:

> "The military culture discourages the individual coming forward with concerns about personal readiness to deploy." (Sharpe & English, 2006, p. 33).

> "There is an awareness of the importance of psychological preparedness, but it has not reached any sort of parity with the awareness accorded operational or physical readiness." (Sharpe & English, 2006, p. 33).

This suggests that the focus and perhaps the framing of the research requires consideration in order to "sell" it within the CF system. The most effective way to frame individual readiness is in terms of its potential impact on performance.

Another challenge likely to be faced in a future program of research is the number of different researchers working on this topic within the CF and the need to combine efforts to avoid redundancies. The perspective of other researchers currently working within the CF system would also be important to maintain. To this end, it might be helpful to create a systematic "grid" showing all the relevant individuals or groups who are researching individual readiness. Working to identify the structures and departments tasked to promote and sustain individual readiness in order to understand their conceptualization of this problem as well as identifying the tools and resources that they use, might also be helpful. Understanding what aspects of readiness are already being researched by others within the CF/DND system is important, because aspects that are already "covered off" by other researchers and/or theorists might have less priority for the research program. For example, the Director of Military Personnel program could be actively researching the impact of family issues on individual readiness. It would be ideal to "dovetail" DRDC Toronto efforts with other relevant players and to work collaboratively to better understand individual readiness.

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(U) The Individual Readiness section at Defence Research and Development Canada (DRDC) Toronto is initiating a program of research investigating military individual readiness of Canadian Forces (CF) personnel. This literature review was conducted to provide a broad understanding of the various elements of individual readiness and factors that influence readiness. This review begins with definitions of individual readiness. Current models and measures of individual readiness were also considered. The review then identified and described antecedents of individual readiness, including the CF organization, skill training, and personnel support programs. This ensured individual readiness would be considered from the organizational level as well as the individual level. Following this, the factors influencing individual readiness were examined with particular connection to the impact on performance. A draft model of military individual readiness is presented. Individual readiness dimensions include organizational citizenship behaviour, commitment, identification (with the CF), job satisfaction, perceived organizational support, technical competence, self–efficacy, coping skills, physical fitness, family adaptation, and work–life balance. The literature concludes with a discussion articulating a possible research program to explore military individual readiness.

(U) La section État de préparation de l'individu de Recherche et développement pour la défense Canada (RDDC) Toronto lance un programme de recherche visant à examiner l'état de préparation militaire de l'individu pour les membres des Forces canadiennes (FC). La présente analyse documentaire a été effectuée pour acquérir une large compréhension des différents éléments de l'état de préparation de l'individu et des facteurs qui agissent sur cet état de préparation. Cette analyse débute par une présentation des définitions de l'état de préparation de l'individu. Les modèles actuels et les mesures de l'état de préparation ont aussi été pris en compte. L'analyse a ensuite identifié et décrit les antécédents de l'état de préparation de l'individu, y compris l'organisation des FC, l'acquisition de compétences et les programmes de soutien au personnel. Cela a été fait afin de s'assurer que l'état de préparation de l'individu soit examiné des points de vue organisationnel et individuel. À la suite de cela, les facteurs influençant l'état de préparation de l'individu ont été examinés, particulièrement en lien avec les répercussions sur le rendement. Une ébauche de modèle de l'état de préparation militaire de l'individu est présentée. Parmi les dimensions de l'état de préparation de l'individu, on retrouve le comportement de citoyenneté organisationnelle, l'engagement, l'identification (aux FC), la satisfaction professionnelle, le soutien organisationnel perçu, la compétence technique, l'auto–efficacité, les habiletés d'adaptation, la forme physique, l'adaptation familiale et la conciliation travail–vie. La documentation se termine par une discussion proposant un éventuel programme de recherche visant à explorer l'état de préparation militaire individuel.

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(U) individual readiness; Canadian Forces; definitions; models; measures; organization; skill training; personnel support programs; organizational citizenship behaviour; commitment; identification; job satisfaction; perceived organizational support; technical competence; self–efficacy; coping skills; physical fitness; family adaptation; work–life balance; regimental system; leadership; collective efficacy; unit climate; organizational outcomes